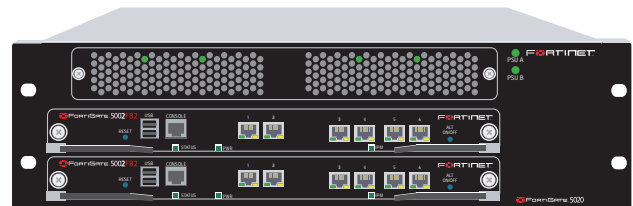
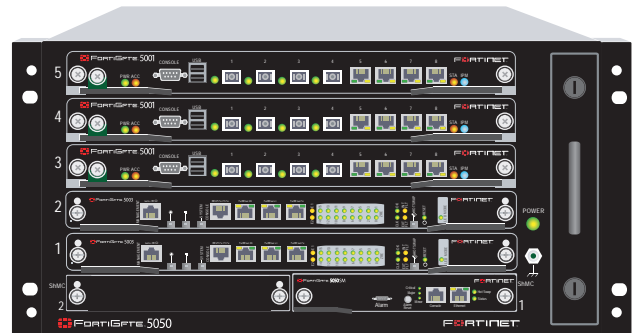


QUICK GUIDE

FortiGate-5000 Series



A high-level guide to all three FortiGate-5000 series chassis and the FortiGate and FortiSwitch modules that you can install in them. For detailed information about the FortiGate-5000 series hardware, see the [FortiGate-5000 Series Hardware Guide](#) and the [FortiGate-5000 Installation Guide](#).

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FortiGate-5000 Series Quick Guide

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Regulatory compliance

FCC Class A Part 15 CSA/CUS



Caution: If you install a battery that is not the correct type, it could explode. Dispose of used batteries according to local regulations.

Version	Date	Description of changes
1	Feb 14, 2006	First release
2	March 15, 2006	<ul style="list-style-type: none">• Corrected gigabit ethernet interface specification (changed 1000Base-TX to 1000Base-T).• Adjusted some page formatting.

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Introduction

This *FortiGate-5000 series Quick Guide* is a high-level guide to all three FortiGate-5000 series chassis and the FortiGate and FortiSwitch modules that you can install in them. For detailed information about the FortiGate-5000 series hardware, see the [FortiGate-5000 Series Hardware Guide](#) and the [FortiGate-5000 Installation Guide](#).

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FortiGate-5140 chassis

You can install up to 14 FortiGate-5000 series modules in the 14 slots of the FortiGate-5140 ATCA chassis. The FortiGate-5140 is a 12U chassis that contains two redundant hot swappable DC power entry modules that connect to -48 VDC Data Center DC power. The FortiGate-5140 chassis also includes three hot swappable cooling fan trays. If all 14 slots contain FortiGate-5001SX modules, the FortiGate-5140 chassis provides a total of 112 Gigabit ethernet FortiGate interfaces.

You can also install a FortiSwitch-5003 module in the FortiGate-5140 chassis to provide HA heartbeat communications. You can add a second FortiSwitch-5003 module for redundancy. The First FortiSwitch-5003 module is installed in slot 1, the second in slot 2.

The FortiGate-5140 chassis requires -48VDC Data Center DC power. If DC power is not available you can install a FortiGate-5053 power converter tray (purchased separately) with FortiGate-5140 power supplies.

Figure 1 shows the front of a FortiGate-5140 chassis. Two FortiSwitch-5003 modules are installed in slots 1 and 2. Twelve FortiGate-5001SX modules are installed in slots 3 to 14.

Figure 1: FortiGate-5140 chassis front panel

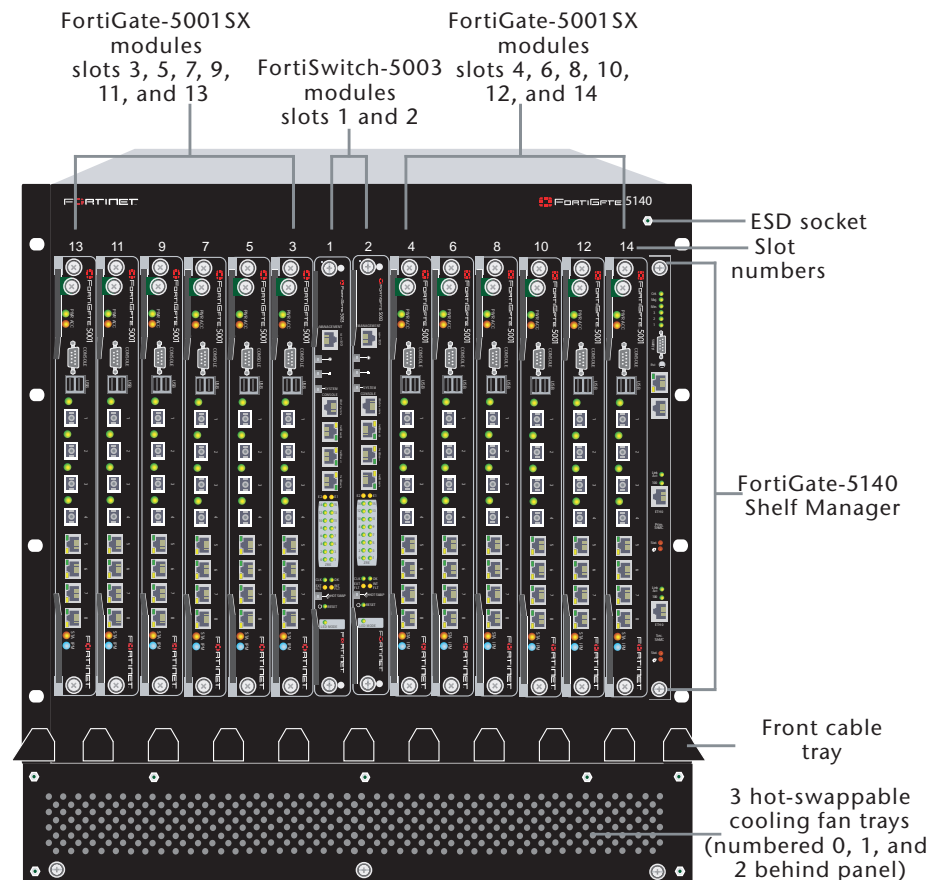
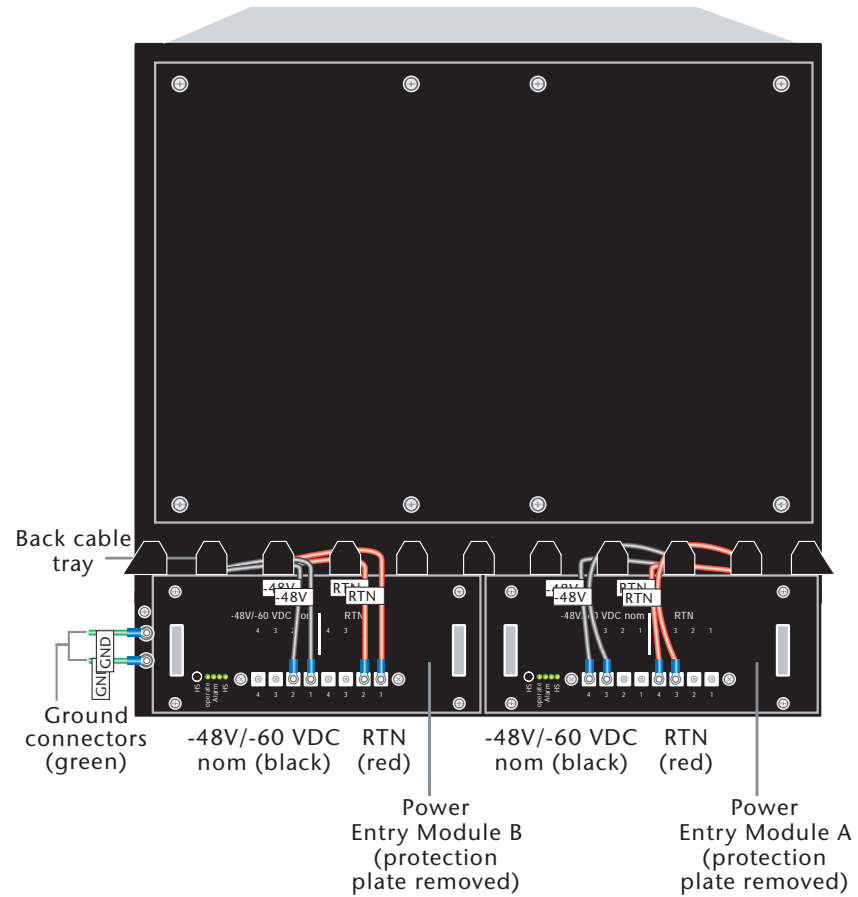


Figure 2 shows the back panel of the FortiGate-5140 chassis. The back panel includes two hot-swappable redundant -48V/-60 VDC power entry modules (PEMs) labelled PEM A and PEM B.

Figure 2: FortiGate-5140 chassis back panel



Connecting a FortiGate-5140 chassis to Data Center DC power and Data Center ground

Connect the FortiGate-5140 chassis to Data Center DC power (also called battery power) using the redundant power entry modules (PEMs). Fortinet supplies and recommends AWG-14 stranded wires for all power connections. Black for -48VDC, red for RTN, and green for ground. If required, install terminal lugs on the wires before connecting them to the PEM terminal strips. If you are connecting both PEMs the -48VDC and RTN terminals on PEM A and PEM B must be wired symmetrically.

Figure 3: Connecting a FortiGate-5140 PEM to Data Center DC power

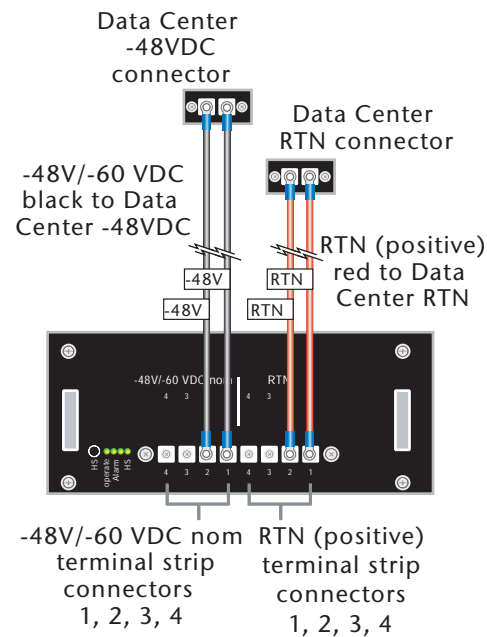
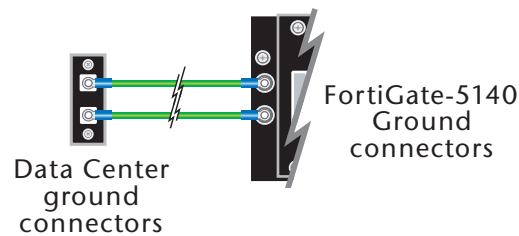


Figure 4: Connecting a FortiGate-5140 chassis to Data Center ground

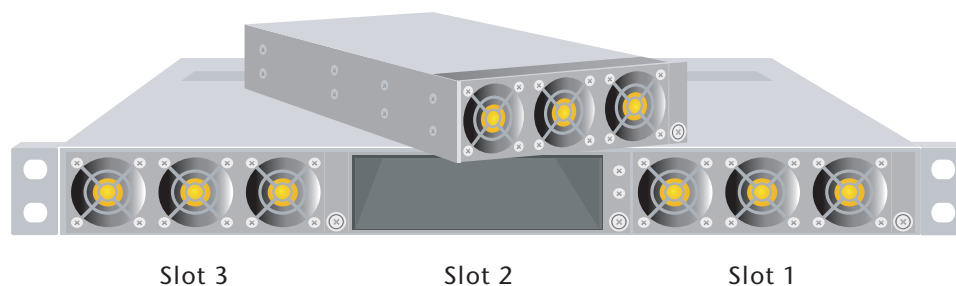


Connecting the FortiGate-5140 chassis to AC power using the FortiGate-5053 power converter tray

If Data Center DC power is not available, you can use the FortiGate-5053 power converter tray with FortiGate-5140 power supplies (shown in [Figure 5](#)) to convert AC power to DC power. The FortiGate-5053 power converter tray and the power supplies are not supplied with the FortiGate-5140 chassis and must be purchased separately.

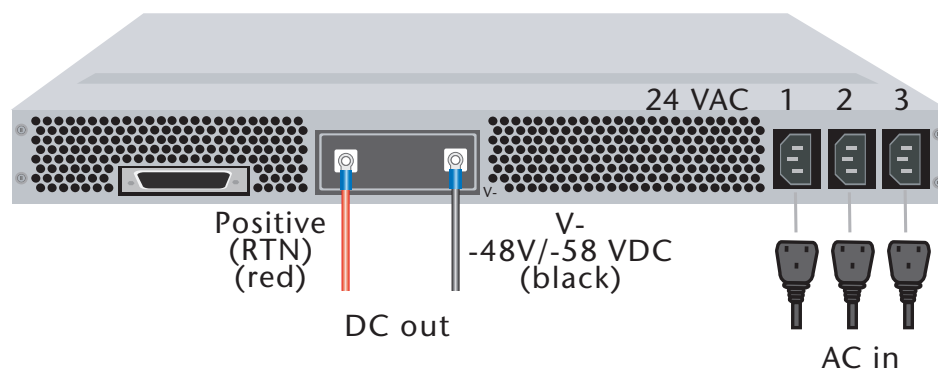
The front panel of the FortiGate-5053 power converter tray (shown in [Figure 5](#)) provides access to the FortiGate-5140 power supplies.

Figure 5: Front panel of the FortiGate-5053 power converter tray with one power supply removed



The back panel of the FortiGate-5053 (shown in [Figure 6](#)) includes one DC power connector terminal consisting of a RTN connector and a -48VDC connector. The -48VDC connector is labelled -V. The RTN connector is not labelled.

Figure 6: Back panel of the FortiGate-5053 power converter tray



Selecting the power supplies and power converter trays that you need for your FortiGate-5140 configuration

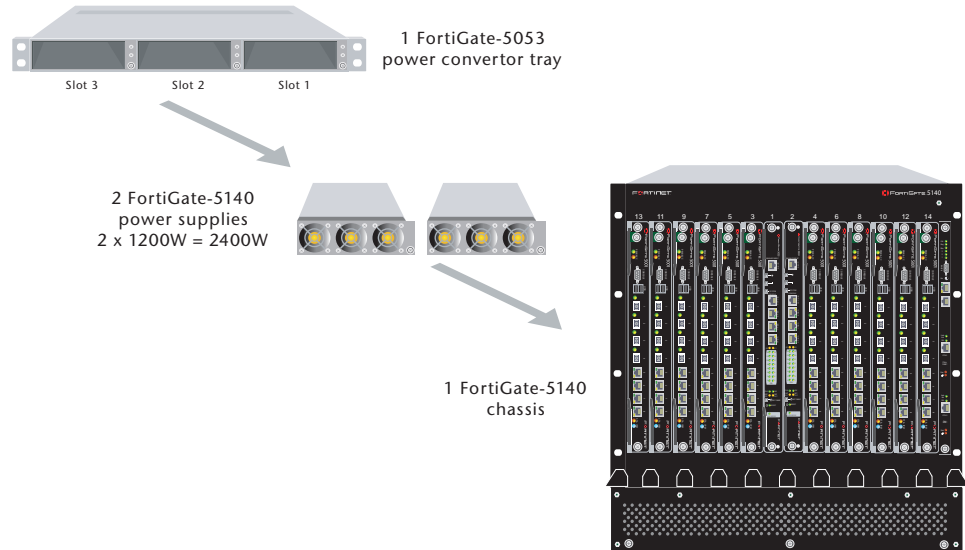
The FortiGate-5053 power converter tray contains space for up to three FortiGate-5140 power supplies. A FortiGate-5140 power supply converts AC power to -48 VDC power. Each FortiGate-5140 power supply provides 1200W of power.

The FortiGate-5053 power converter tray uses 2 + 1 power supply redundancy. If three FortiGate-5140 power supplies are installed in a FortiGate-5053 power converter tray, the first two power supplies provide a total of 2400W (2 x 1200W) of power. The third power supply is the redundant backup.

Basic power requirements

To supply enough power for a FortiGate-5140 chassis with a total of 14 FortiGate and FortiSwitch modules you require one FortiGate-5053 power converter tray and two FortiGate-5140 power supplies (see [Figure 7](#)). The FortiGate-5140 power supplies are installed in FortiGate-5053 slots 1 and 2. This configuration supplies 2400W of power to the FortiGate-5140 chassis.

Figure 7: Non-redundant power for all FortiGate-5140 chassis slots

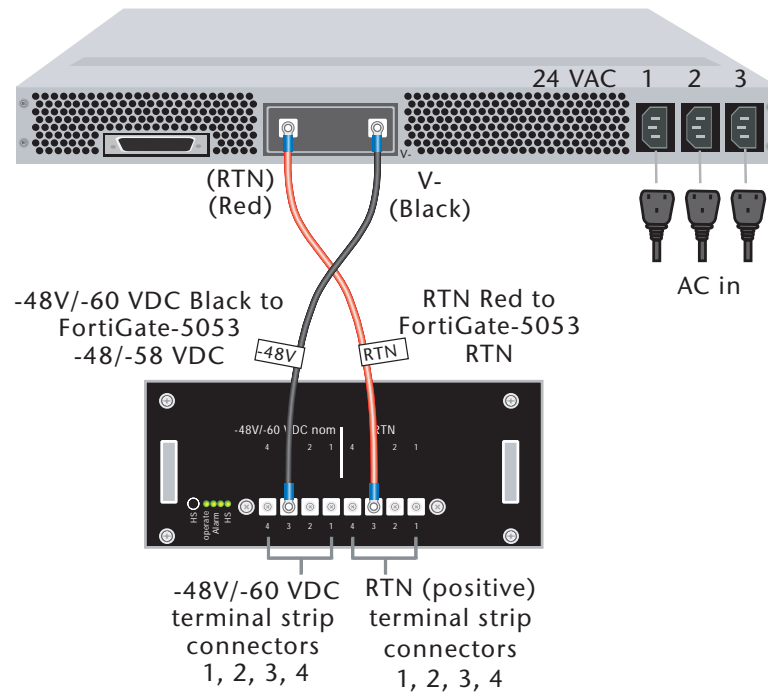


For information about additional power configurations, see the [FortiGate-5000 Series Hardware Guide](#).

Connecting a FortiGate-5140 chassis to the FortiGate-5053 power converter tray

To use a FortiGate-5053 power converter tray with the FortiGate-5140 chassis you need to make DC power connections between the FortiGate-5140 chassis and the FortiGate-5053 power converter tray. You also need to connect the FortiGate-5140 chassis to Data Center ground.

Figure 8: Connect a FortiGate-5140 PEM to a FortiGate-5053 power converter tray



FortiGate-5050 chassis

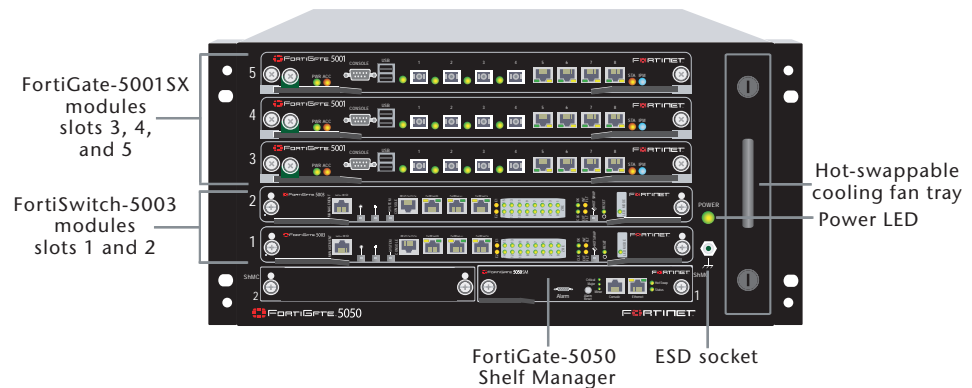
You can install up to five FortiGate-5000 series modules in the five slots of the FortiGate-5050 ATCA chassis. The FortiGate-5050 is a 5U chassis that contains two redundant DC power connections that connect to -48 VDC Data Center DC power. The FortiGate-5050 chassis also includes a hot swappable cooling fan tray. If all five slots contain FortiGate-5001SX modules, the FortiGate-5050 chassis provides a total of 40 Gigabit ethernet FortiGate interfaces.

You can also install a FortiSwitch-5003 module in the FortiGate-5050 chassis to provide HA heartbeat communications. A single FortiSwitch-5003 module can provide HA heartbeat communications for up to three FortiGate-5000 series modules in the chassis. You can add a second FortiSwitch-5003 module for redundancy. The first FortiSwitch-5003 module is installed in slot 2, the second in slot 1.

The FortiGate-5050 chassis requires -48VDC Data Center DC power. If DC power is not available you can install a FortiGate-5053 power converter tray (purchased separately) with FortiGate-5020/5050 power supplies.

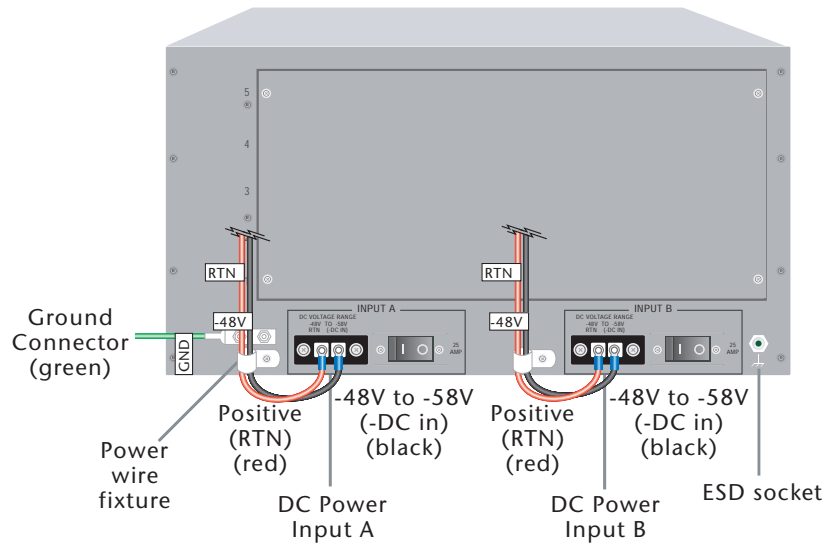
[Figure 9](#) shows the front of a FortiGate-5050 chassis. Two FortiSwitch-5003 modules are installed in slots 1 and 2. Three FortiGate-5001SX modules are installed in slots 3, 4, and 5.

Figure 9: FortiGate-5050 front panel



The FortiGate-5050 chassis back panel includes two redundant -48V to -58V DC power input connectors labelled Input A and Input B.

Figure 10: FortiGate-5050 chassis back panel



Connecting the FortiGate-5050 chassis to Data Center DC power and Data Center ground

Connect the FortiGate-5050 chassis to Data Center DC power (also called battery power) using the redundant power input connectors. Fortinet supplies and recommends AWG-14 stranded wires for all power connections. Black for -48VDC, red for RTN, and green for ground. If required, install terminal lugs on the wires before connecting them to the power input connectors.

Figure 11: Connecting a FortiGate-5050 power input connector to Data Center DC power

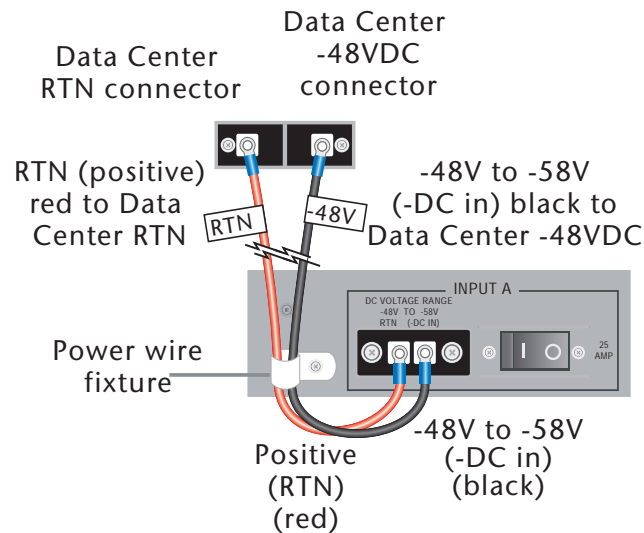
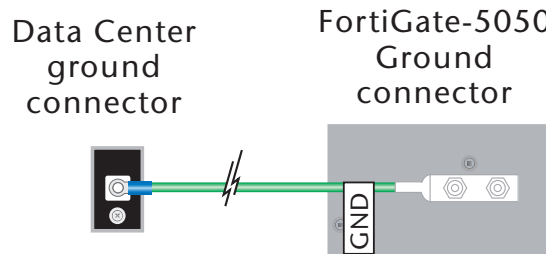
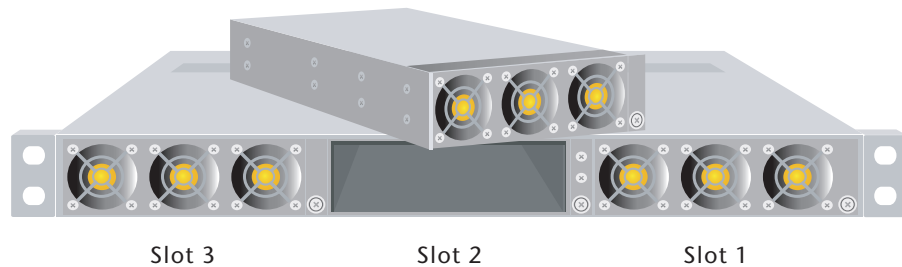


Figure 12: Connecting a FortiGate-5050 chassis to Data Center ground

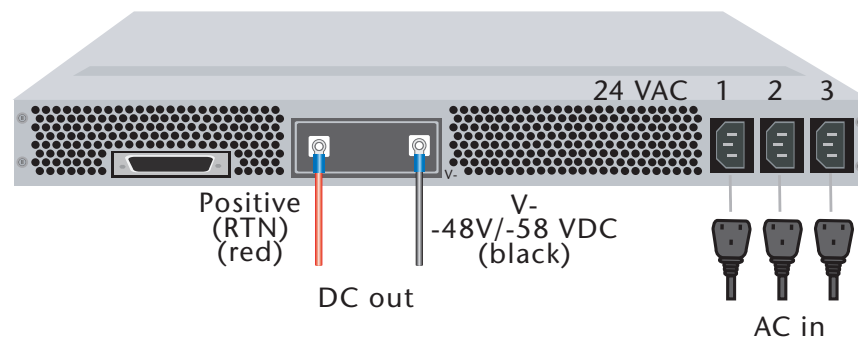
Connecting the FortiGate-5050 chassis to AC power using the FortiGate-5053 power converter tray

If Data Center DC power is not available, you can use the FortiGate-5053 power converter tray with FortiGate-5020/5050 power supplies (shown in [Figure 13](#)) to convert AC power to DC power. The FortiGate-5053 power converter tray and the power supplies are not supplied with the FortiGate-5050 chassis and must be purchased separately. (FortiGate-5020/5050 power supplies are also used to provide power to a FortiGate-5020 chassis.)

The front panel of the FortiGate-5053 power converter tray (shown in [Figure 13](#)) provides access to the FortiGate-5020/5050 power supplies.

Figure 13: Front panel of the FortiGate-5053 power converter tray with one power supply removed

The back panel of the FortiGate-5053 (shown in [Figure 14](#)) includes one DC power connector terminal consisting of a RTN connector and a -48VDC connector. The -48VDC connector is labelled -V. The RTN connector is not labelled.

Figure 14: Back panel of the FortiGate-5053 power converter tray

Selecting the power supplies and power convertor trays that you need for your FortiGate-5050 configuration

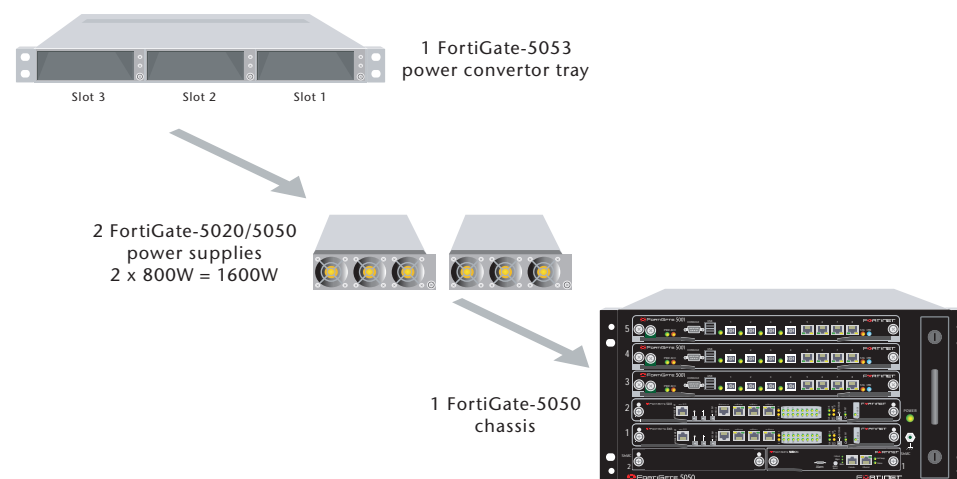
The FortiGate-5053 power converter tray contains space for up to three FortiGate-5020/5050 power supplies. A FortiGate-5020/5050 power supply converts AC power to -48 VDC power. Each FortiGate-5020/5050 power supply provides 800W of power.

The FortiGate-5053 power converter tray uses 2 + 1 power supply redundancy. If three FortiGate-5020/5050 power supplies are installed in a FortiGate-5053 power converter tray, the first two power supplies provide a total of 1600W (2 x 800W) of power. The third power supply is the redundant backup.

Basic power requirements

To supply enough power for a FortiGate-5050 chassis with a total of five FortiGate modules and FortiSwitch modules you require one FortiGate-5053 power converter tray and two FortiGate-5020/5050 power supplies (see [Figure 15](#)). The FortiGate-5020/5050 power supplies are installed in FortiGate-5053 slots 1 and 2. This configuration supplies 1600W of power to the FortiGate-5020/5050 chassis.

Figure 15: Non-redundant power for all FortiGate-5050 chassis slots

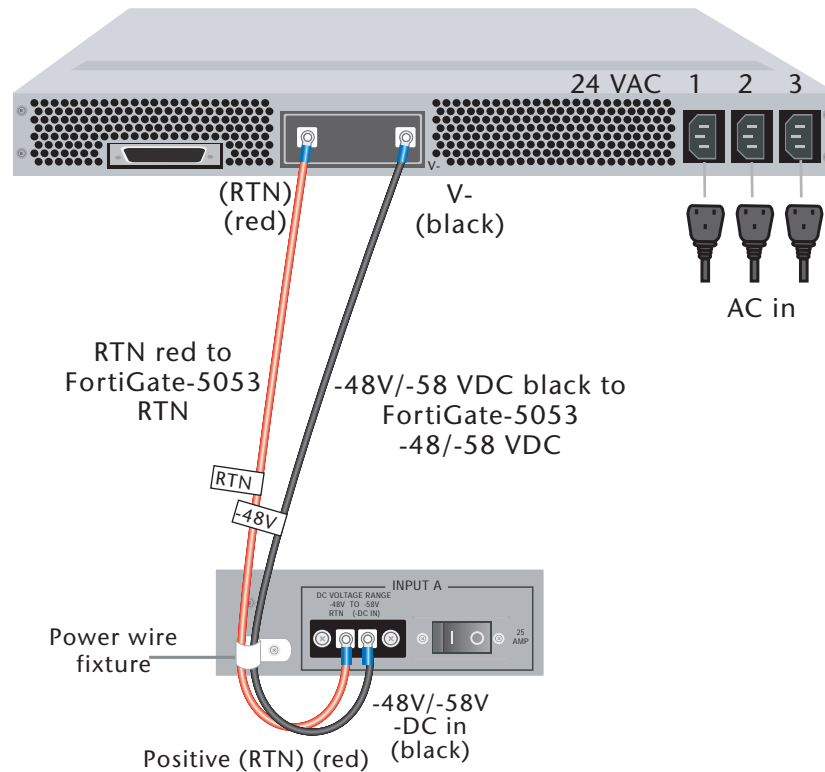


For information about additional power configurations, see the [FortiGate-5000 Series Hardware Guide](#).

Connecting a FortiGate-5050 chassis to the FortiGate-5053 power converter tray

To use a FortiGate-5053 power converter tray with the FortiGate-5050 chassis you need to make DC power connections between the FortiGate-5050 chassis and the FortiGate-5053 power converter tray. You also need to connect the FortiGate-5050 chassis to Data Center ground.

Figure 16: Connecting a FortiGate-5050 power input connector to a FortiGate-5053 power converter tray



FortiGate-5020 chassis

You can install one or two FortiGate-5000 series modules in the two slots of the FortiGate-5020 ATCA chassis. The FortiGate-5020 is a 4U chassis that contains two redundant AC to DC power supplies that connect to AC power. The FortiGate-5020 chassis also includes an internal cooling fan tray. If both slots contain FortiGate-5001SX modules, the FortiGate-5020 chassis provides a total of 16 Gigabit ethernet FortiGate interfaces.

If you install the same FortiGate-5000 series module in both slots, you can configure the modules to operate as an HA cluster. HA heartbeat communications between the modules uses the FortiGate-5020 backplane. No extra switching or other connections are required.

The FortiGate-5020 chassis can only be connected to AC power. Two redundant FortiGate-5020/5050 power supplies are factory installed in the FortiGate-5020 chassis.

Figure 17 shows the front of a FortiGate-5020 chassis. Two FortiGate-5001SX modules are installed. The FortiGate-5020/5050 power supplies are factory installed behind the panel at the top of the chassis. The power LEDs for the power supplies are visible on the front panel as well.

Figure 17: FortiGate-5020 front panel with two FortiGate-5001SX modules

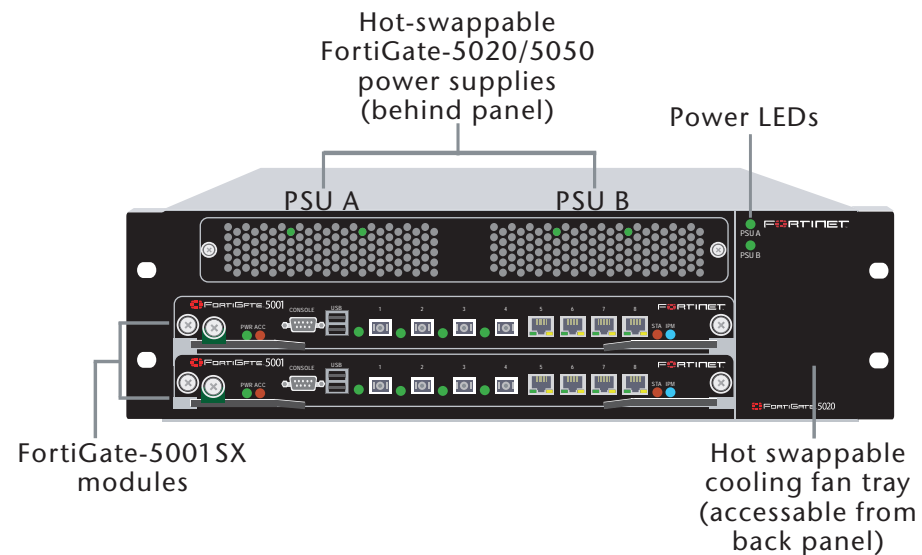
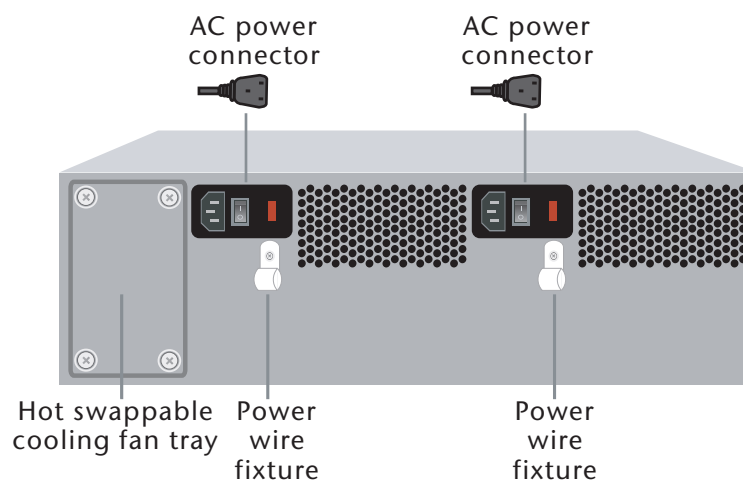


Figure 18 shows the back of a FortiGate-5020 chassis. The chassis back panel includes two redundant AC power connectors and provides access to the hot swappable cooling fan tray. Each AC power connector includes a 25 Amp circuit breaker that also functions as the on/off switch for the AC power connector. You can use the power wire fixtures to secure AC power wires to prevent the power wires from being accidentally disconnected.

Figure 18: FortiGate-5020 chassis back panel

Connecting the FortiGate-5020 chassis to AC power

The AC power connectors on the back of the FortiGate-5020 chassis provide power to two factory installed redundant FortiGate-5020/5050 power supplies. Each power supply distributes 800 W of 48VDC power to the entire FortiGate-5020 chassis.

FortiGate-5001SX security system

The FortiGate-5001SX security system module is a high-performance FortiGate security system with a total of 8 Gigabit ethernet interfaces. The FortiGate-5001SX module supports high-end features including 802.1Q VLANs and multiple virtual domains. You can also configure two or more FortiGate-5001SX modules to create a high availability (HA) cluster to provide failover protection and load balancing. HA clustering uses two internal gigabit interfaces for HA communication through the FortiGate-5000 series chassis backplane, leaving all eight front panel gigabit interfaces available for network connections.

The FortiGate-5001SX module includes the following features:

- A total of eight gigabit interfaces
 - Four gigabit interfaces that can accept Small Formfactor Pluggable (SFP) fiber or copper transceivers (interfaces 1, 2, 3, and 4)
 - Four 1000Base-T gigabit copper network interfaces (interfaces 5, 6, 7, and 8)
- DB-9 RS-232 serial console connection
- USB connector
- Mounting hardware
- LED status indicators

The FortiGate-5001SX module comes supplied with four fiber or four copper SFP transceivers. Before you can connect FortiGate-5001SX interfaces 1 to 4, you must insert the SFP transceivers into the FortiGate-5001SX front panel cage slots numbered 1 to 4.

Figure 19: FortiGate-5001SX front panel

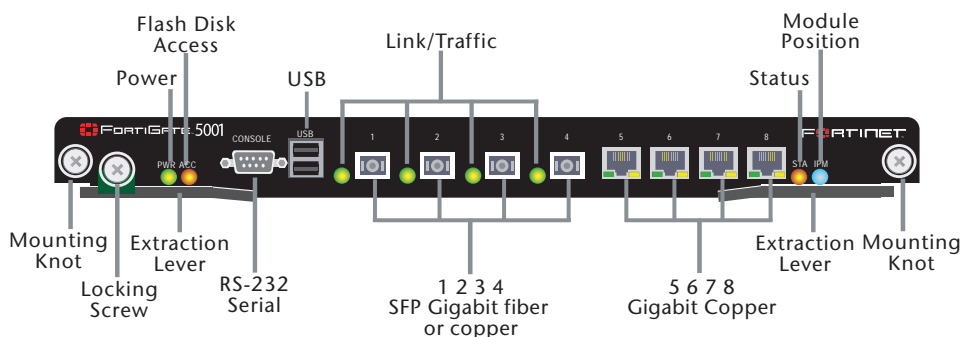


Table 1 lists and describes the FortiGate-5001SX module LEDs.

Table 1: FortiGate-5001SX LEDs

LED	State	Description
PWR	Green	The FortiGate-5001SX module is powered on.

Table 1: FortiGate-5001SX LEDs (Continued)

LED	State	Description
ACC	Off or Flashing red	The ACC LED flashes red when the FortiGate-5001SX module access the FortiOS flash disk.
STA	Green	Normal operation.
	Red	The FortiGate-5001SX is starting or a fault condition exists.
IPM	Blue	The FortiGate-5001SX is ready to be hot-swapped (removed from the chassis).
	Flashing Blue	The FortiGate-5001SX is changing from hot swap to running mode or from running mode to hot swap.
	Off	Normal operation. The FortiGate-5001SX module is in contact with the chassis backplane.
1, 2, 3, 4	Green	The correct cable is connected to the gigabit SPF interface.
	Flashing	Network activity at the gigabit SPF interface.
5, 6, 7, 8	Green	The correct cable is connected to the copper 1000Base-T gigabit interface and the connected equipment has power.
	Flashing	Network activity at this interface.
	Amber	The interface is connected at 1000 Mbps.

[Table 2](#) lists and describes the FortiGate-5001SX connectors.

Table 2: FortiGate-5001SX connectors

Connector	Type	Speed	Protocol	Description
1, 2, 3, 4	LC SFP	1000Base-SX	Ethernet	Four gigabit SFP interfaces that can accept fiber or copper gigabit transceivers.
5, 6, 7, 8	RJ-45	1000Base-T	Ethernet	Copper gigabit connection to 10/100/1000Base-T copper networks.
CONSOLE	DB-9	9600 bps	RS-232 serial	Serial connection to the command line interface.
USB	USB			USB key firmware updates and configuration backup (FortiOS v3.0).

Changing jumper settings

The JP3 jumper on the FortiGate-5001SX module is factory set by Fortinet into one of two positions (see [Figure 20 on page 23](#)):

- For a FortiGate-5140 or FortiGate-5050 chassis, the jumper connects pins 2 and 3
- For a FortiGate-5020 chassis, the jumper connects pins 1 and 2

The jumper must connect pins 2 and 3 if the chassis contains a shelf manager. Both the FortiGate-5140 and the FortiGate-5050 contain shelf managers, and the FortiGate-5020 does not.

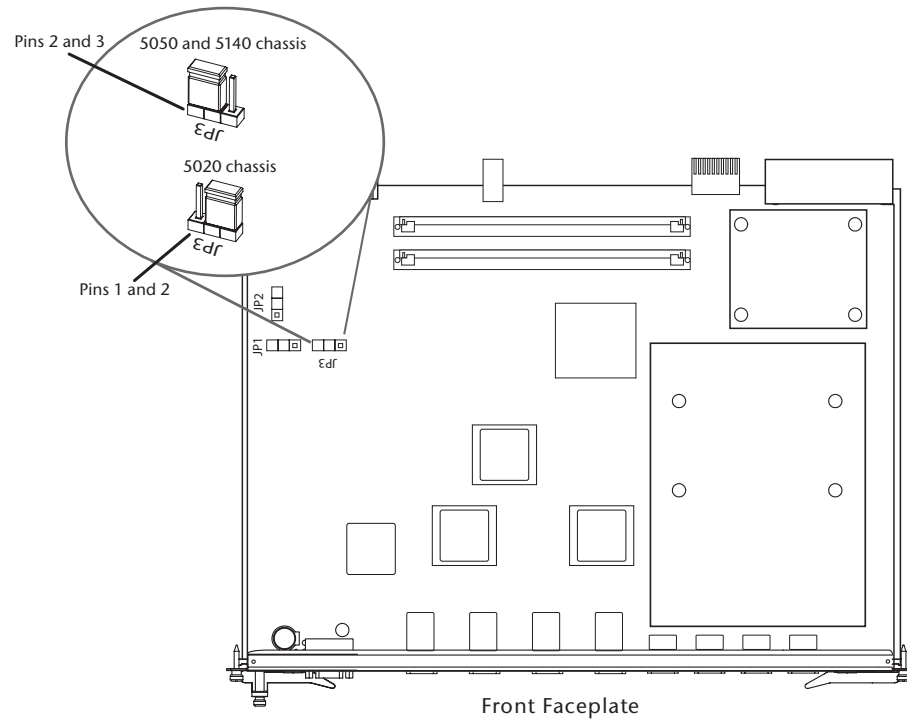
If the JP3 jumper settings are incorrect, when you insert the FortiGate-5001SX module into a chassis the module may not start up or may not be able to communicate with the chassis shelf manager.

Normally, because the jumpers are factory set, you do not have to change them. However, if you are moving a FortiGate-5001SX from a FortiGate-5140 or FortiGate-5050 to a FortiGate-5020 or the reverse, you need to move the JP3 jumper.

Table 3: FortiGate-5001SX JP3 jumper settings for each chassis

Chassis	Correct JP3 Jumper Setting	Result of wrong jumper setting
FortiGate-5140	pins 2 and 3	Shelf manager cannot find FortiGate-5001SX module. No chassis information available
FortiGate-5050	pins 2 and 3	Shelf manager cannot find FortiGate-5001SX module. No chassis information available
FortiGate-5020	pins 1 and 2	FortiGate-5001SX module will not start up.

Figure 20: FortiGate-5001SX jumper positions



Inserting a FortiGate-5001SX module into a chassis

The FortiGate-5001SX module left extraction lever contacts to a hidden power switch. The module must be fully installed in a chassis slot and this extraction lever must be closed and locked for the FortiGate-5001SX module to receive power and operate normally. If the FortiGate-5001SX module is not receiving power, the IPM LED glows blue and all other LEDs remain off.

Figure 21: FortiGate-5001SX module mounting components

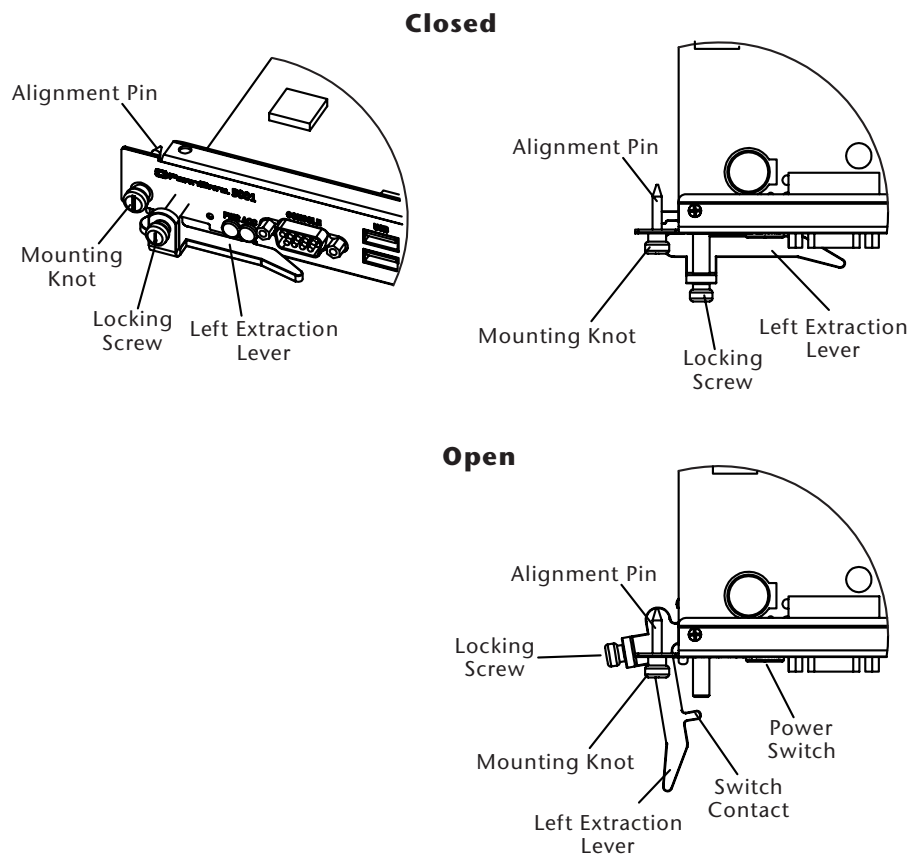


Table 4: FortiGate-5001SX normal operating LEDs

LED	State
PWR	Green
ACC	Off (Or flashing red when the system accesses the FortiGate-5001SX flash disk.)
STA	Green
IPM	Off

FortiGate-5001FA2 security system

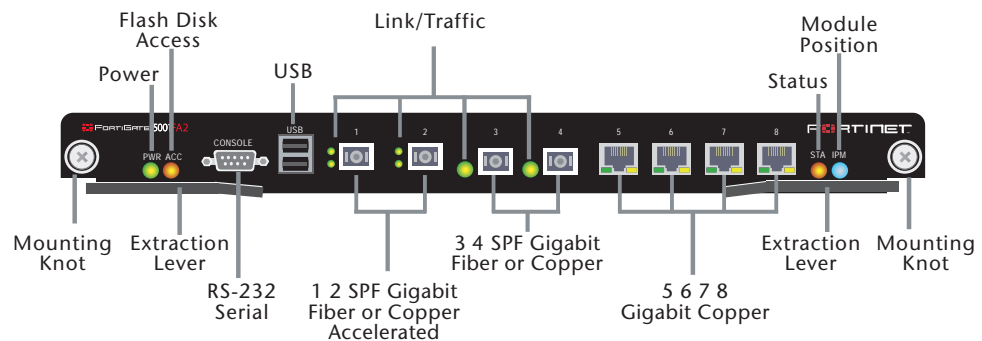
The FortiGate-5001FA2 security system module is a high-performance FortiGate security system similar to the FortiGate-5001SX security system but with added accelerated packet forwarding and policy enforcement for two of its eight Gigabit ethernet interfaces. Accelerated packet forwarding and policy enforcement results in accelerated small packet performance required for voice, video, and other multimedia streaming applications.

The FortiGate-5001FA2 module includes the following features:

- A total of eight gigabit interfaces
 - Two accelerated gigabit interfaces that can accept SFP fiber or copper gigabit transceivers (interfaces 1 and 2)
 - Two gigabit interfaces that can accept Small Formfactor Pluggable (SFP) fiber or copper gigabit transceivers (interfaces 3 and 4)
 - Four 1000Base-T gigabit copper network interfaces (interfaces 5, 6, 7, 8)
- DB-9 RS-232 serial console connection
- USB connector
- Mounting hardware
- LED status indicators

The FortiGate-5001FA2 module comes supplied with four fiber or four copper SFP transceivers. Before you can connect FortiGate-5001FA2 interfaces 1 to 4, you must insert the SFP transceivers into the FortiGate-5001FA2 front panel cage slots numbered 1 to 4.

Figure 22: FortiGate-5001FA2 front panel



[Table 5](#) lists and describes the FortiGate-5001FA2 module LEDs.

Table 5: FortiGate-5001FA2 module LEDs

LED	State	Description
PWR	Green	The FortiGate-5001FA2 module is powered on.
ACC	Off or Flashing red	The ACC LED flashes red when the FortiGate-5001FA2 module access the FortiOS flash disk.

Table 5: FortiGate-5001FA2 module LEDs

LED	State	Description
STA	Green	Normal operation.
	Red	The FortiGate-5001FA2 is booting or a fault condition exists.
IPM	Blue	The FortiGate-5001FA2 is ready to be hot-swapped (removed from the chassis).
	Flashing Blue	The FortiGate-5001FA2 is changing from hot swap to running mode or from running mode to hot swap.
	Off	Normal operation. The FortiGate-5001FA2 module is in contact with the chassis backplane.
1, 2, 3, 4	Green	The correct cable is connected to the gigabit SPF interface.
	Flashing	Network activity at the gigabit SPF interface.
5, 6, 7, 8	Green	The correct cable is connected to the copper 1000Base-T gigabit interface and the connected equipment has power.
	Flashing	Network activity at this interface.
	Amber	The interface is connected at 1000 Mbps.

Table 6 lists and describes the FortiGate-5001FA2 connectors.

Table 6: FortiGate-5001FA2 connectors

Connector	Type	Speed	Protocol	Description
1 and 2	LC SFP	1000Base-SX	Ethernet	Two gigabit SFP interfaces that can accept fiber or copper gigabit transceivers.
3 and 4	LC SFP	1000Base-SX	Ethernet	Two gigabit SFP interfaces that can accept fiber or copper gigabit transceivers.
5, 6, 7, 8	RJ-45	1000Base-T	Ethernet	Copper gigabit connection to 10/100/1000Base-T copper networks.
CONSOLE	DB-9	9600 bps	RS-232 serial	Serial connection to the command line interface.
USB	USB			USB key firmware updates and configuration backup (FortiOS v3.0).

Changing jumper settings

The JP3 jumper on the FortiGate-5001FA2 module is factory set by Fortinet into one of two positions (see [Figure 23 on page 27](#)):

- For a FortiGate-5140 or FortiGate-5050 chassis, the jumper connects pins 2 and 3
- For a FortiGate-5020 chassis, the jumper connects pins 1 and 2

The jumper must connect pins 2 and 3 if the chassis contains a shelf manager. Both the FortiGate-5140 and the FortiGate-5050 contain shelf managers, and the FortiGate-5020 does not.

If the JP3 jumper settings are incorrect, when you insert the FortiGate-5001FA2 module into a chassis the module may not start up or may not be able to communicate with the chassis shelf manager.

Normally, because the jumpers are factory set, you do not have to change them. However, if you are moving a FortiGate-5001FA2 from a FortiGate-5140 or FortiGate-5050 to a FortiGate-5020 or the reverse, you need to move the JP3 jumper.

Also, if a new FortiGate-5001FA2 module does not function properly, you should check the JP3 jumper settings.

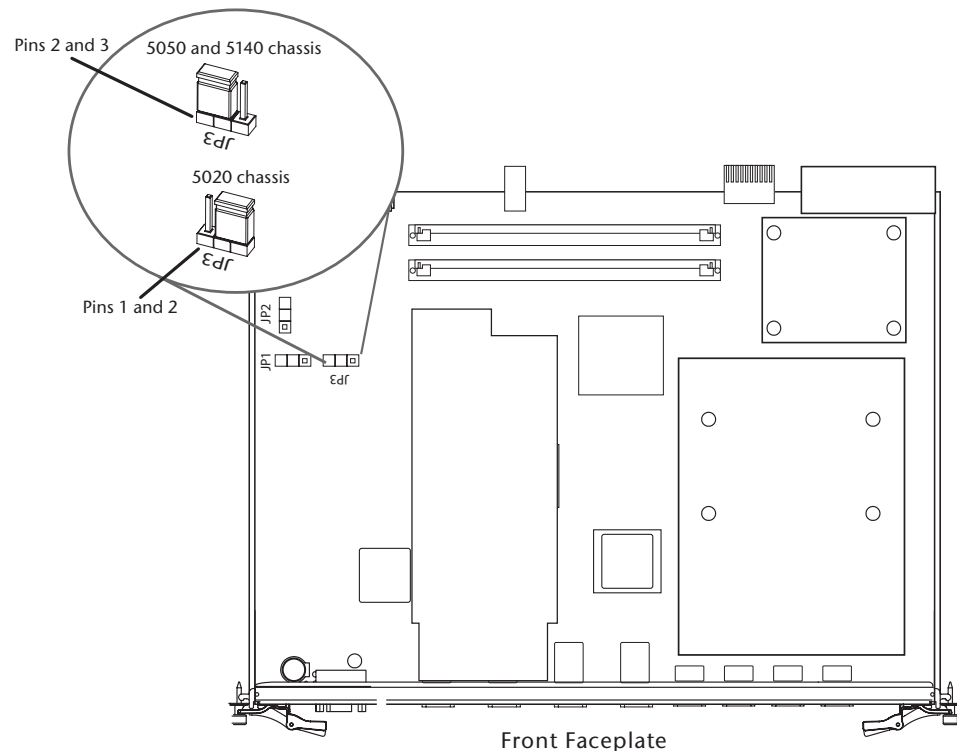
Table 7: FortiGate-5001FA2 JP3 jumper settings for each chassis

Chassis	Correct JP3 Jumper Setting	Result of wrong jumper setting
FortiGate-5140	pins 2 and 3	Shelf manager cannot find FortiGate-5001FA2 module. No chassis information available
FortiGate-5050	pins 2 and 3	Shelf manager cannot find FortiGate-5001FA2 module. No chassis information available
FortiGate-5020	pins 1 and 2	FortiGate-5001FA2 module will not start up.



Note: If the shelf manager in a FortiGate-5140 or FortiGate-5050 chassis is missing or not functioning, FortiGate-5001FA2 modules with JP3 jumper connecting pins 2 and 3 will not start up. To operate FortiGate-5001FA2 modules in a FortiGate-5140 or FortiGate-5050 chassis without a shelf manager, set the JP3 jumper to connect pins 1 and 2.

Figure 23: FortiGate-5001FA2 jumper positions



Inserting a FortiGate-5001FA2 module into a chassis

The FortiGate-5001FA2 module left extraction lever contacts to a hidden power switch. The module must be fully installed in a chassis slot and this extraction lever must be closed and locked for the FortiGate-5001FA2 module to receive power and operate normally. If the FortiGate-5001FA2 module is not receiving power, the IPM LED glows blue and all other LEDs remain off.

Figure 24: FortiGate-5001FA2 module mounting components

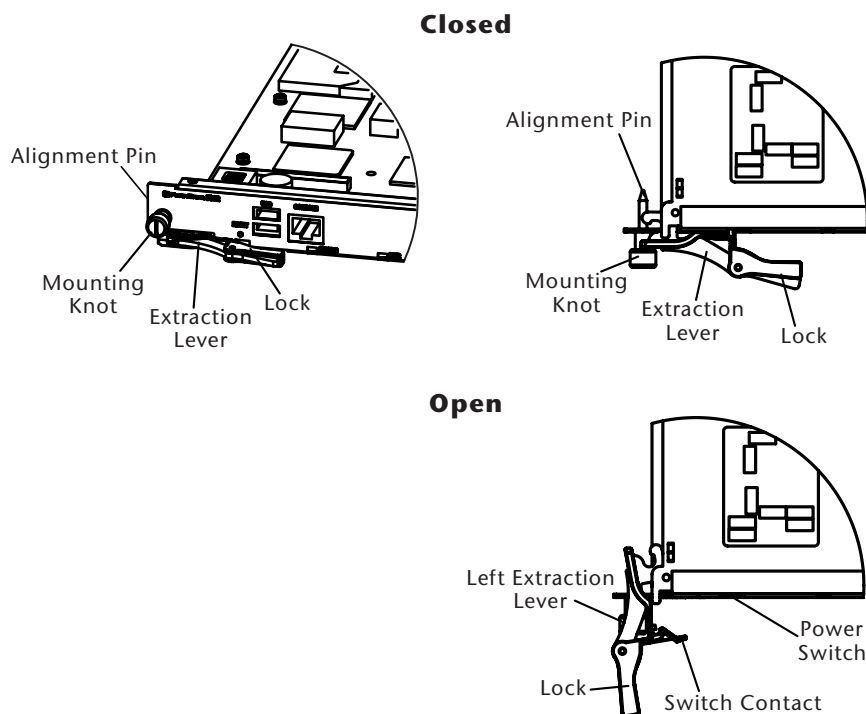


Table 8: FortiGate-5001FA2 normal operating LEDs

LED	State
PWR	Green
ACC	Off (Or flashing red when the system accesses the FortiGate-5001FA2 flash disk.)
STA	Green
IPM	Off

FortiGate-5002FB2 security system

The FortiGate-5002FB2 security system module is a high-performance FortiGate security system with accelerated packet forwarding and policy enforcement for two of its six Gigabit ethernet interfaces. Accelerated packet forwarding and policy enforcement results in accelerated small packet performance required for voice, video, and other multimedia streaming applications.

The FortiGate-5002FB2 module supports high-end features including 802.1Q VLANs and multiple virtual domains. You can also configure two or more FortiGate-5002FB2 modules to create a high availability (HA) cluster to provide failover protection and load balancing. HA clustering uses two internal gigabit interfaces for HA communication through the FortiGate-5000 series chassis backplane, leaving all eight front panel gigabit interfaces available for network connections.

The FortiGate-5002FB2 module includes the following features:

- A total of six gigabit interfaces
 - Two accelerated 1000Base-T gigabit copper network interfaces (interfaces 1 and 2)
 - Four 1000Base-T gigabit copper network interfaces (interfaces 3, 4, 5, and 6)
- RJ-45 RS-232 serial console connection
- USB connector
- Mounting hardware
- LED status indicators

Figure 25: FortiGate-5002FB2 front panel

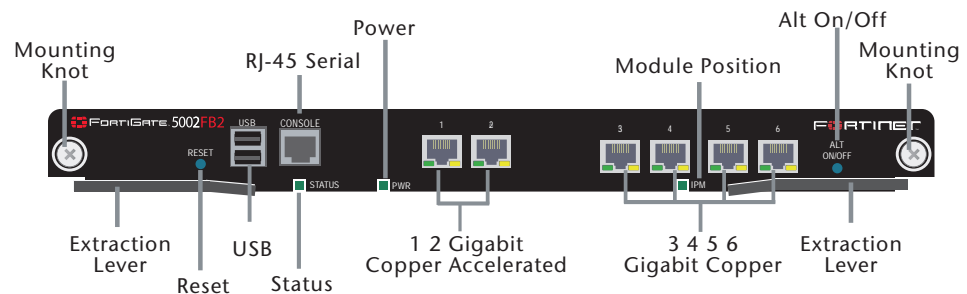


Table 9 lists and describes the FortiGate-5002FB2 module LEDs.

Table 9: FortiGate-5002FB2 module LEDs

LED	State	Description
STATUS	Green	Normal operation.
	Red	The FortiGate-5002FB2 is booting or a fault condition exists.
PWR	Green	The FortiGate-5002FB2 module is powered on.
IPM	Blue	The FortiGate-5002FB2 is ready to be hot-swapped (or card is ready to be removed from the chassis).
	Flashing Blue	The FortiGate-5002FB2 is changing from hot swap to running mode or from running mode to hot swap.
	Off	Normal operation. The FortiGate-5002FB2 module is in contact with the FortiGate chassis backplane.
Ports 1-6	Green	The correct cable is connected to the copper 1000Base-T gigabit interface and the connected equipment has power.
	Flashing	Network activity at this interface.
	Amber	The interface is connected at 1000 Mbps.

Table 10 lists and describes the FortiGate-5002FB2 connectors.

Table 10: FortiGate-5002FB2 connectors

Connector	Type	Speed	Protocol	Description
1, 2	RJ-45	1000Base-T	Ethernet	Copper gigabit connections to 10/100/1000Base-T copper networks.
3, 4, 5, 6	RJ-45	1000Base-T	Ethernet	Copper gigabit connection to 10/100/1000Base-T copper networks.
CONSOLE	RJ-45	9600 bps	RS-232 serial	Serial connection to the command line interface.
USB	USB			USB key firmware updates and configuration backup (FortiOS v3.0).

Inserting a FortiGate-5002FB2 module into a chassis

The FortiGate-5002FB2 module left extraction lever contacts to a hidden power switch. The module must be fully installed in a chassis slot and this extraction lever must be closed and locked for the FortiGate-5002FB2 module to receive power and operate normally. If the FortiGate-5002FB2 module is not receiving power, the IPM LED glows blue and all other LEDs remain off.

Figure 26: FortiGate-5002FB2 module mounting components

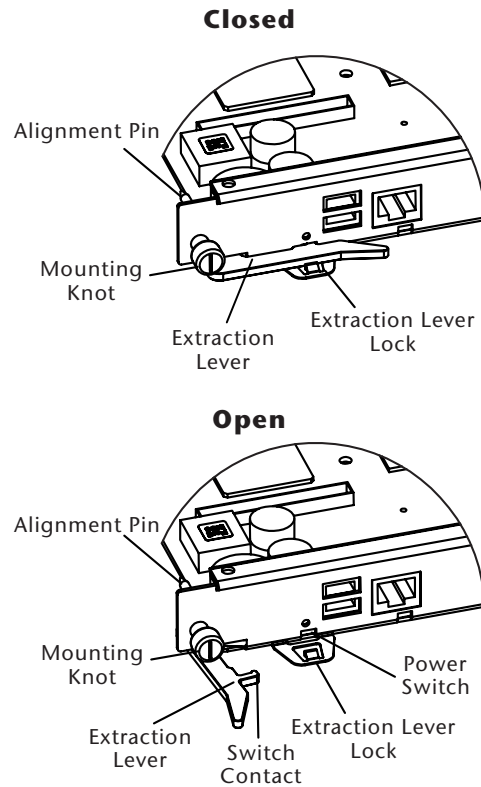


Table 11: FortiGate-5002FB2 normal operating LEDs

LED	State
STATUS	Green
PWR	Green
IPM	Off

FortiSwitch-5003 module

The FortiSwitch-5003 module provides switching for the FortiGate-5140 chassis and the FortiGate-5050 chassis. This switching takes the form of backplane HA heartbeat connections between FortiGate-5000 series modules installed in a FortiGate-5140 chassis or a FortiGate-5050 chassis.

You can install a second FortiSwitch-5003 module in a FortiGate-5140 or FortiGate-5050 chassis as a backup or redundant switch. In this configuration, if one of the FortiSwitch-5003 modules fails, or is removed from the chassis, HA heartbeat communication is not interrupted.

The FortiSwitch-5003 module includes the following features:

- A total of 16 1000Base-T gigabit ethernet interfaces:
 - 13 backplane 1000Base-T gigabit interfaces for HA switching between FortiGate-5000 series modules installed in the same chassis as the FortiSwitch-5003
 - Three front panel 1000Base-T gigabit interfaces for HA switching between FortiGate-5000 series chassis
- One 100Base-TX out of band management ethernet interface
- RJ-45 RS-232 serial console connection
- Mounting hardware
- LED status indicators

Figure 27: FortiSwitch-5003 front panel

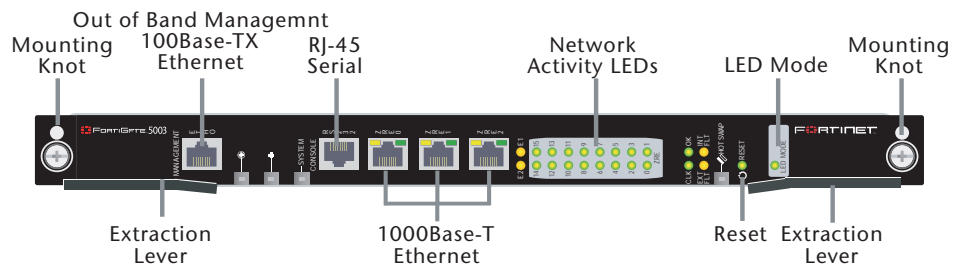


Table 12 lists and describes the FortiSwitch-5003 module LEDs.

Table 12: FortiSwitch-5003 module LEDs

LED	State	Description
+	Green	The FortiSwitch-5003 module is powered on.
	Yellow	Caution status. Caution status is indicated by the fault condition of the CLOCK, OK or INT FLT LEDs.
⊗	Yellow	Out of service. Normally off. The LED is on when there is a switch failure.
System Console	Green	Normal operation.

Table 12: FortiSwitch-5003 module LEDs (Continued)

LED	State	Description
Network activity LEDs 0-15	Yellow	Link/Activity mode - Port is not forwarding packets. Link/Speed mode - Indicates 1000 Mbps connection
	Green	Link/Activity mode - Blinking LED indicates network traffic. Link/Speed mode - Indicates 100 Mbps connection.
	Off	Link/Activity mode - No link. Link/Speed mode - Indicates 10 Mbps connection.
E1	Yellow	Link/Activity mode - Port is not forwarding packets. Link/Speed mode - Indicates 1000 Mbps connection
	Green	Link/Activity mode - Blinking LED indicates network traffic. Link/Speed mode - Indicates 100 Mbps connection.
	Off	Link/Activity mode - No link. Link/Speed mode - Indicates 10 Mbps connection.
E0	Yellow	Link/Activity mode - Port is not forwarding packets. Link/Speed mode - Indicates 1000 Mbps connection
	Green	Link/Activity mode - Blinking LED indicates network traffic. Link/Speed mode - Indicates 100 Mbps connection.
	Off	Link/Activity mode - No link. Link/Speed mode - Indicates 10 Mbps connection.
OK	Green	Initialization completed successfully.
EXT FLT	Yellow	Cannot establish a link to a configured port or another connection problem external to the adaptor.
INT FLT	Yellow	Failure of internal tests. Off during power up.
Hot Swap	Blue	Light on indicates the switch is ready to remove. During a hot swap, LED is on. LED turns off when the switch is correctly installed.
Reset		Press and hold Reset for three seconds to restart the switch.
LED Mode		Change the port LED display function from Link/Activity mode to Link/Speed mode.

Table 13 lists and describes the FortiSwitch-5003 connectors.

Table 13: FortiGate-5003 connectors

Connector	Type	Speed	Protocol	Description
ETH0	RJ-45	100Base-T	Ethernet	Ethernet out of band management connection.
CONSOLE	RJ-45	9600 bps	RS-232 serial	Serial connection to the command line interface.
ZRE0, ZRE1, ZRE2	RJ-45	1000Base-T	Ethernet	Redundant connections to another FortiGate chassis.

Inserting a FortiSwitch-5003 module into a chassis

The FortiSwitch-5003 module left extraction lever contacts to a hidden power switch. The module must be fully installed in a chassis slot and this extraction lever must be closed and locked for the FortiSwitch-5003 module to receive power and operate normally. If the FortiSwitch-5003 module is not receiving power, the Hot Swap LED glows blue and all other LEDs remain off.

Figure 28: FortiSwitch-5003 module mounting components

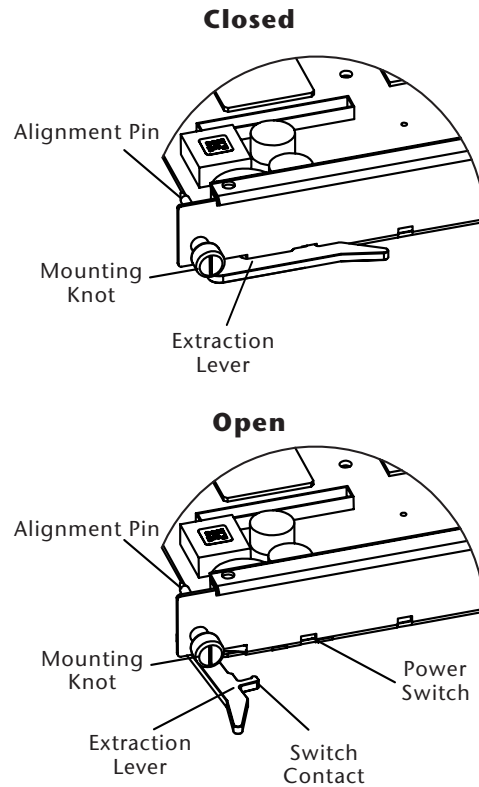


Table 14: FortiSwitch-5003 normal operating LEDs

LED	State
+	Green
⊕	Off
System Console	Green
Network activity LEDs 0-15	Off unless FortiGate-5000 series modules are operating in HA mode.
OK	Green

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