



RackSwitch™ G8100 Installation Guide

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BLADE
NETWORK TECHNOLOGIES

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Preface

This *Installation Guide* provides information and instructions to install a RackSwitch G8100. For information about configuration and management of the switch, see the *Command Reference* guide and the product release notes.

Who Should Use This Book

This *Installation Guide* is intended for network installers and system administrators engaged in configuring and maintaining a network. It assumes that you are familiar with your RackSwitch G8100, your Web browser, Ethernet concepts, IP addressing, the IEEE 802.1D Spanning Tree Protocol, and SNMP configuration parameters.

Related Documentation

For documentation about configuring your switch, see the RackSwitch G8100 *Application Guide* and *Command Reference*.

For details about the switch information, statistics, and configuration parameters, see the RackSwitch G8100 *Command Reference*.

How to get help

If you need help, service, or technical assistance, call Blade Network Technologies Technical Support:

US toll free calls: 1-800-414-5268

International calls: 1-408-834-7871

You also can visit our web site at the following address:

<http://www.bladenetwork.net>

Click the **Support** tab.

The warranty card received with your product provides details for contacting a customer support representative. If you are unable to locate this information, please contact your reseller. Before you call, prepare the following information:

- Serial number of the switch unit
- Software release version number
- Brief description of the problem and the steps you have already taken
- Technical support dump information (`# show tech-support`)

CHAPTER 1

RackSwitch G8100 description and specifications

The RackSwitch G8100 is an all 10Gb Ethernet rackable aggregation switch with unmatched line-rate Layer 2 performance. The G8100 uses a wire-speed, non-blocking switching fabric that provides simultaneous wire-speed transport of multiple packets at low latency on all ports.

The G8100 contains 24 10Gb ports and two 1GbE ports for management. The 10 Gigabit Ethernet ports are comprised of 20 recessed CX4 ports and four Small Form-factor, Pluggable (SFP+) slots. The SFP+ slots can be populated with optical transceivers.

This 1U switch is rack mountable in either the horizontal or vertical direction, depending on your application.

You can manage the switch through the console port, or through a network connection using Telnet, a Web browser-based interface, or SNMP-based network management software.

RackSwitch G8100 features

This section provides an overview of RackSwitch G8100 features.

Performance

- 480 Gbps throughput (full duplex), non-blocking switching architecture
- 100% line rate
- Deterministic port-to-port latency under 300 nanoseconds with 64B packets

Management features

- Clients
 - Industry standard command-line interface (ISCLI)
 - Browser-based Interface (BBI)
 - BladeHarmony Manager
- Protocols
 - SNMP v1, v2, v3
 - Remote Monitoring (RMON)
 - Secondary NTP support
 - DHCP
- Software upgrades
 - Dual software images
 - Upgrade via serial, browser, or FTP

Software features

- Security
 - Secure interface login & password
 - RADIUS and TACACS+
 - SSH v1, v2
 - HTTPS Secure Browser-based interface
 - Wire-speed filtering with Access Control Lists (ACLs)

- Layer 2
 - 1024 VLANs (802.1Q), including Private VLANs
 - Multi-link trunking, compatible with Cisco EtherChannel
 - LACP (IEEE 802.3ad)
 - Spanning Tree (802.1D), Multiple Spanning Tree (802.1s), Rapid Spanning Tree (802.1w), with Fast Uplink Convergence
 - 16K forwarding database entries
- Quality of Service
 - 802.1p priority queues
 - Differentiated Services Code Point (DSCP) support
- Availability
 - Uplink Failure Detection

Switch components

This section describes the RackSwitch G8100 hardware components.

Hardware options

The following list provides an overview of G8100 hardware:

- Switch unit
- Mounting hardware
 - Standard rack mounting brackets and screws
 - iDataPlex rack mounting brackets and screws
 - 4-post rack mounting brackets and screws

Switch unit

The RackSwitch G8100 switch unit is a 1U rack-mountable 10 Gigabit Ethernet switch. You can mount the G8100 in either the horizontal or vertical direction.

The RackSwitch G8100 allows for flexible mounting of the switch, as follows:

- G8100F provides front-to-rear airflow.
- G8100R provides rear-to-front airflow.

Ports

The switch unit contains 24 10Gb ports, plus two management ports, and one serial console port:

- 20 CX4 ports (recessed)
- 4 SFP+ slots
- 2 RJ-45 management ports
- 1 RS-232 console port (D9)

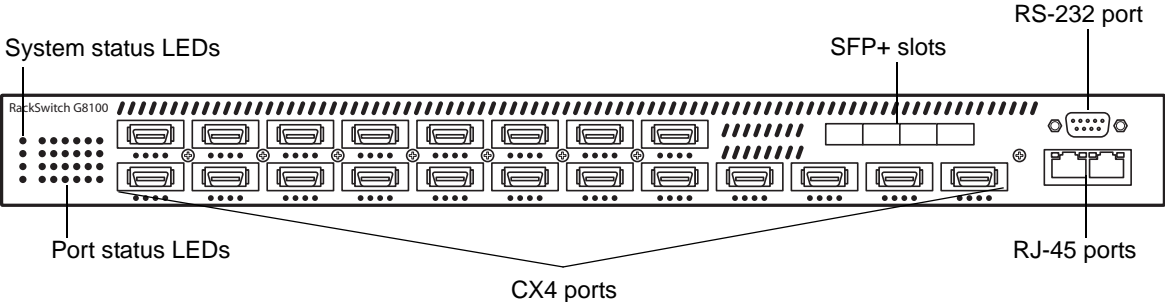


Figure 1-1 RackSwitch G8100 front panel

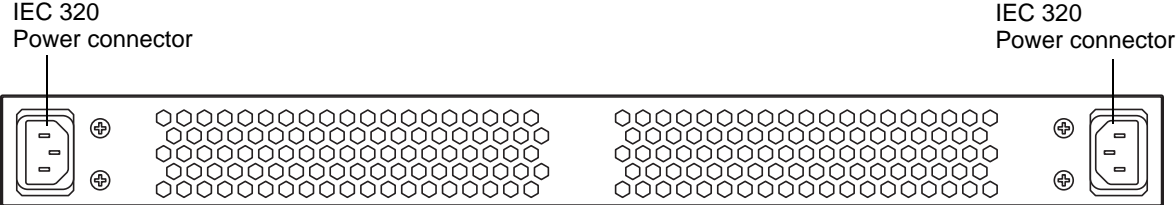


Figure 1-2 RackSwitch G8100 rear panel

Fans

Four internal fans cool the switch unit. If an individual fan fails, the other fans continue to run, and the switch unit continues to operate normally. Fans are not customer replaceable.

Fan operation and internal temperatures are monitored. If the air temperature exceeds a desired threshold, the environmental monitor displays warning messages.

NOTE – If a fan fails, the maximum operating temperature drops from +40°C to +35°C.

The Fan LED blinks if there is a failure of one or more fans.

Power Supply

The G8100 has two redundant 160W AC power supplies. Each internal power supply has an individual IEC 320 power connector on the rear panel. The power cord attaches to a universal grounded AC power source.



CAUTION—To reduce the risk of electric shock, use only power cords that have a grounding path, and always connect the power cord to a properly grounded power outlet.

Each power supply can be connected to a separate AC circuit to mitigate the risk of down time during a power failure. When used in a redundant configuration, the dual power supplies have a load-sharing capability that allows each supply to operate at under 50 percent of full load. Using redundant power can minimize the power disruption during a power supply failure and extend the expected lifetime of each supply by operating normally in a conservative power mode.

There is no power switch on the G8100; the switch unit powers up when power is supplied through the power cord(s).

The Power Supply LED indicates the status of the power supplies. The LED blinks when only one power cord is connected, and lights steady when both power cords are connected. Note that system LEDs are operational only after the switch unit initializes (boots).

Switch Ports

The RackSwitch G8100 switch ports and port options are described below.

CX4 ports

Twenty CX4 ports are located on the front panel. These recessed ports provide CX4 connectivity between the G8100 and copper 10GbE CX4 network devices. The CX4 ports support link spans up to 15 meters on appropriate CX4-grade copper cables.

The CX4 ports provide powered CX4 automatically. The port detects when a powered CX4 device is connected, and sends power to the device.

The G8100 is designed to accept most standard recessed 10GbE CX4 cables.

NOTE – Do not use InfiniBand CX4 cables with the G8100. Although InfiniBand cables have the same CX4 connectors as 10GBase-CX4 cables, InfiniBand cables do not adhere to the same standard as 10GBase-CX4 cables.

SFP slots

Four Small Form-factor Pluggable (SFP+) slots are located on the front panel. These slots accept approved optical 1 Gbps SFP or 10 Gbps SFP+ transceivers.

SFP transceivers are not included with the G8100 switch unit. The following SFP transceivers are available from Blade Network Technologies:

Table 1-1 Recommended SFP+ transceiver

Part number	Description
BN-CKM-SP-SR	SFP+ 10GBase-SR Short Range Optical Fiber Transceiver

10/100/1000Base-T ports

Two 10/100/1000BaseT ports (RJ-45) are located on the front panel. These management ports support in-line management and Control Plane Stacking.

The following table describes the RJ-45 connector pin assignments.

Table 1-2 RJ-45 port pin assignments

Pin number	Signal	Description
1	BI DA+	Bi-directional data pair A positive
2	BI DA-	Bi-directional data pair A negative
3	BI DB+	Bi-directional data pair B positive
4	BI DC+	Bi-directional data pair C positive
5	BI DC-	Bi-directional data pair C negative
6	BI DB-	Bi-directional data pair B negative
7	BI DD+	Bi-directional data pair D positive
8	BI DD-	Bi-directional data pair D negative

Console port

The RS-232 (D-9) console port is located on the front panel.

The following table describes the RS-232 connector pin assignments:

Table 1-3 Console port pin assignments

Pin number	Function
1	N/A
2	Receive Data (RD)
3	Transmit Data (TD)
4	N/A
5	Ground
6	N/A
7	Ready to Send (RTS)
8	Clear to Send (CTS)
9	N/A
Connector shell	Chassis ground

A female D-9 to female D-9 cable (symmetric) is used to connect to a terminal or PC. Either end can be connected to either device. The following table describes the wiring of the console cable:

Table 1-4 Console cable pin assignments

D-9 Pin number	D-9 Pin number
Pin 2	Pin 3
Pin 3	Pin 2
Pin 5	Pin 5
Pin 1	N/A
Pin 4	N/A
Pin 6	N/A
Pin 7	Pin 8
Pin 8	Pin 7
Pin 9	N/A
Shell	Shell

LEDs

Two LED stacks provide system status and port link status. The system LEDs are described in the following table:



Power supplies and AC power input status



Fans status

MB

Stacking master indicator

MS

Stacking member indicator

The following table describes the system LED indications:

Table 1-5 System LEDs status

Function	Power	Fan	Master	Member
Total Power Failure	Off	Off	Off	Off
Service Required	Blink Green	Blink Green	Blink Green	Blink Green
Power Supplies OK	Solid Green	N/A	N/A	N/A
Power Supply Failure	Blink Green	N/A	N/A	N/A
Fans OK	N/A	Solid Green	N/A	N/A
Fan Failure	N/A	Blink Green	N/A	N/A
Stack Master	N/A	N/A	On	Off
Stack Backup/Member	N/A	N/A	Off	On
Stack Error	N/A	N/A	On	N/A
Non-Stack Member	N/A	N/A	Off	Off

XGE port LEDs

Figure 1-3 correlates the XGE port LEDs to the physical port numbers.

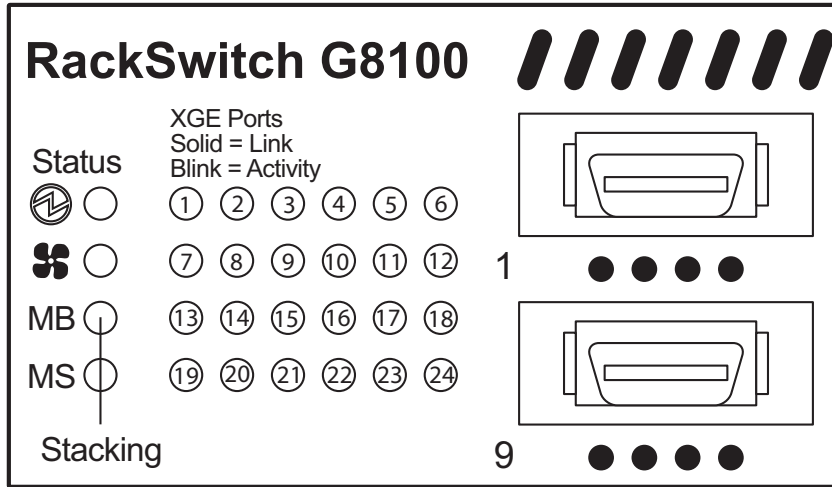


Figure 1-3 Status LEDs and XGE port LEDs

Status and link LEDs for the data ports are described in the following table.

Table 1-6 SFP+ LEDs status

LED	Solid Green	Blink Green	Off
Port Link/ Activity	Valid Link/ No Activity	Activity	No Link

RJ-45 LEDs

Status LEDs for the RJ-45 ports are described in the following table.

Table 1-7 RJ-45 LEDs status

LED	Solid Green	Blink Green	Off
Link	Valid Link	Activity	No Link
Speed	100/1000Mbps	N/A	10Mbps

Technical specifications

This section provides specifications for the RackSwitch G8100.

Physical characteristics

Physical characteristics of the RackSwitch G8100F/G8100R switch unit are listed in the following table.

Table 1-8 Physical characteristics

Specification	G8100F	G8100R
Dimensions (H x W x D)	1.73 x 17.3 x 15.0 in. 4.4 x 43.9 x 38.1 cm.	1.73 x 17.3 x 15.0 in. 4.4 x 43.9 x 38.1 cm.
Weight	5.5 kg.	5.5 kg.
Airflow	Front-to-rear	Rear-to-front

Environmental specifications

Environmental specifications for the RackSwitch G8100F/G8100R switch unit are listed in the following table.

Table 1-9 Environmental specifications

Specification	Measurement
Temperature, ambient operating	0°C to +40°C
Temperature (fan failure or power supply failure), operating	0°C to +35°C
Temperature, storage	-20°C to +70°C
Relative humidity (non-condensing), operating	10 to 90%
Relative humidity (non-condensing), storage	10 to 95%
Altitude, operating	3,050 m (10,000 feet)
Altitude, storage	4,573 m (15,000 feet)
Acoustic noise	less than 65dB
Heat dissipation	600 BTU/hour (maximum)

Power Specifications

Power specifications for the RackSwitch G8100F/G8100R switch unit are listed in the following table.

Table 1-10 Power specifications

Specification	Measurement
Number of power supplies	2 (1+1 redundant)
AC-input frequency (universal)	50-60 Hz
AC-input voltage (universal)	100-240 VAC
AC-input current	2.2A (RMS) @ 100VAC 1.0A (RMS) @ 240VAC
AC-input fuse	3.15A (internal)
Power supply output power	160W each
System power dissipation	120W typical
DC-Output voltage	12V nominal
DC-Output current	10A (typical)

Ordering information

The following table lists the parts that you can order for the RackSwitch G8100 product family.

Table 1-11 RackSwitch G8100 ordering information

Part number	Description
Switch	
BN-8100F-BDL	G8100F 24-port GbE Switch (front-to-rear airflow)
BN-8100R-BDL	G8100R 24-port GbE Switch (rear-to-front airflow)
Pluggable Optics	
BN-CKM-SP-SR	SFP+ 10GBase-SR Short Range Transceiver
Rack Mounting Kits	
BN-MNT-EARS	RackSwitch 19" EIA 2-Post Rack Mounting Kit
BN-4POST-RLS	RackSwitch 19" EIA 4-Post Rack Mounting Kit
BN-MNT-HZ-RLS	RackSwitch 19" EIA 4-Post Rack Mounting Kit for e1350
BN-MNT-DPX-RLS	RackSwitch iDataPlex Rack Mounting Kit

CHAPTER 2

Installing the RackSwitch G8100

This chapter describes how to install and initialize the RackSwitch G8100.

Required tools

You need the following tools or equipment to successfully accomplish the installation procedures in this document:

- Standard flat-blade screwdriver
- #2 Phillips screwdriver
- Electrostatic discharge wrist strap

Package contents

The basic RackSwitch G8100 package contains the following items:

- G8100 switch unit (one of the following):
 - G8100F (front-to-rear airflow)
 - G8100R (rear-to-front airflow)
- Standard rack mount kit
 - Two brackets
 - Screws to attach brackets to the switch unit
 - Screws to attach the switch unit to the equipment rack
- D9 serial cable
- AC power cord

Environmental requirements

This section describes the basic environmental requirements for the RackSwitch G8100. Make sure the location where you install the switch meets the following requirements:

- Install the switch unit in a dry, clean, well-ventilated area.
- Provide adequate space on all sides of the switch unit, to ensure proper air flow.
- Make sure that an adequate grounded power supply is within reach of the switch unit.
- Make sure that twisted-pair cable is routed away from power lines, fluorescent lighting fixtures and other sources of electrical interference.

Preventing electric shock

This product does not contain any user-serviceable parts. Do not remove the cover of this device.

This product is designed to work with single-phase power systems that have a grounded neutral conductor. To reduce the risk of electric shock, always plug the power cord into a grounded power outlet.



DANGER— Electrical current from power, telephone, and communication cables is hazardous. To avoid a shock hazard:

- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
 - Connect all power cords to a properly wired and grounded electrical outlet.
 - Connect to properly wired outlets any equipment that will be attached to this product.
 - When possible, use one hand only to connect or disconnect signal cables.
 - Never turn on any equipment when there is evidence of fire, water, or structural damage.
 - Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.
 - Disconnect the power cord before installing, uninstalling, or moving this product.
-

Preventing electrostatic discharge

Electrostatic discharge (ESD) is a discharge of stored static electricity that can damage equipment and impair electrical circuitry. ESD can cause intermittent or complete equipment failures.

Use the following guidelines to prevent ESD damage while you install and work with the G8100 and optional equipment:

- Use anti-static wrist straps. Adjust the strap to provide good skin contact.
- Properly ground work surfaces and equipment racks for protection against electrostatic discharge.
- Avoid contact between equipment and clothing. An anti-static wrist or ankle strap protects the equipment from ESD voltages on the body; ESD voltages on clothing also can cause damage.
- Do not touch connector pins.

Installing the RackSwitch G8100 in a standard equipment rack

This section describes how to install the RackSwitch G8100 in a standard 19-inch equipment rack. For information about mounting the G8100 in other rack types, refer to the following sections:

- [“Installing the RackSwitch G8100 in an iDataPlex rack” on page 26](#)
- [“Installing the RackSwitch G8100 in a 4-post rack” on page 29](#)

The following table lists the parts included in the standard mounting kit.

Table 2-1 BN-MNT-EARS
2-Post Rack Mount Kit

Item number	Part number	Description	Quantity
1	BMM-00056-00	Bracket	2
2	BMC-00049-00	M4 screws	8
3	BMC-00056-00	M6 screws	4
4	BMC-00015-01	M6 locking washers	4
5	BMC-00069-00	M6 clip nuts	4
6	BMC-00084-00	M6 cage nuts	4



CAUTION—Do not stack other devices on top of the switch unit in the rack. The mounting brackets cannot support multiple devices. Use mounting brackets to secure each device to the rack.

Perform the following steps to mount the RackSwitch G8100.

1. Use the M4 screws to attach a mounting bracket to each side of the switch. Torque the screws to approximately 30 inch-pounds (3.5 Nm).

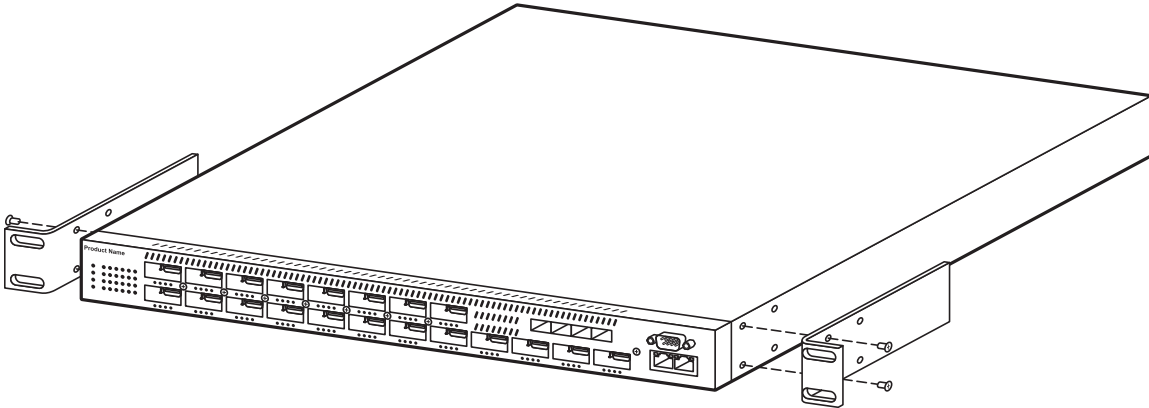


Figure 2-1 Attaching the mounting brackets

2. Slide the switch into the rack as illustrated.

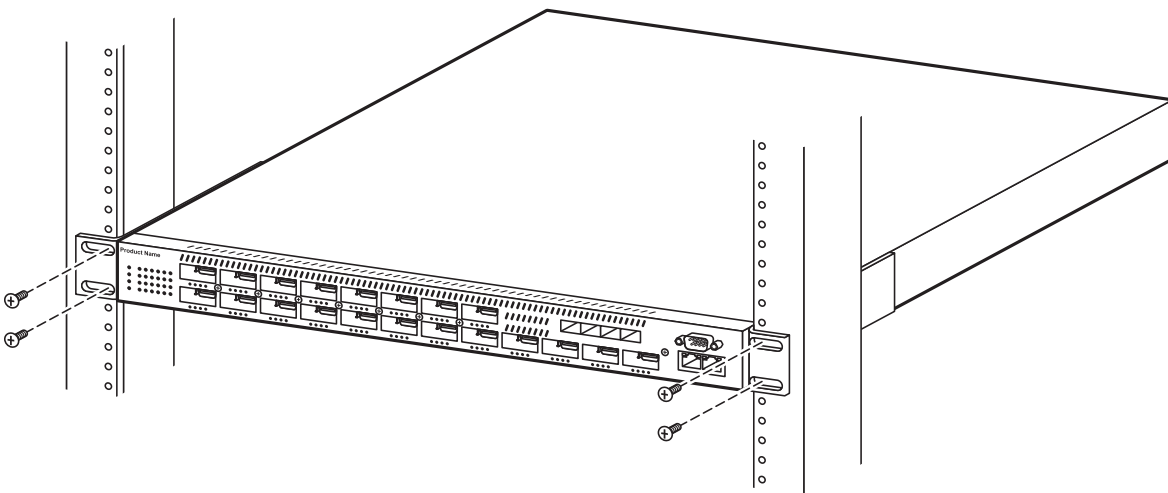


Figure 2-2 Rack-mounting the switch unit

3. Use M6 screws, washers, and clip nuts to secure the switch unit to the rack. Torque the screws to approximately 30 inch-pounds (3.5 Nm).
4. Connect the power cord to one of the IEC connectors on the rear panel. Connect a second power cord to the other IEC connector on the rear panel (optional).

Installing the RackSwitch G8100 in an iDataPlex rack

This section provides general information about installing the RackSwitch G8100 in an IBM iDataPlex rack. The iDataPlex mounting kit allows the switch to be mounted either vertically or horizontally. For information about mounting the G8100 in other rack types, refer to the following sections:

- [“Installing the RackSwitch G8100 in a standard equipment rack” on page 24](#)
- [“Installing the RackSwitch G8100 in a 4-post rack” on page 29](#)

The mounting kit is ordered separately. The following table lists the parts included in the iDataPlex mounting kit.

Table 2-2 BN-MNT-DPX-RLS
iDataPlex Rack Mount Kit

Item number	Part number	Description	Quantity
1	BMM-00098-00	Rear brackets	2
2	BMM-00056-00	Front brackets	2
3	BMM-00066-00	Alignment plate	2
4	BMC-00056-00	M6 screws	8
4	BMC-00015-01	M6 locking washers	8
4	BMC-00069-00	M6 clip nuts	8
5	BMC-00049-00	M4 screws	16

Perform the following steps to mount the RackSwitch G8100 into an iDataPlex rack.

- 1. Use the M4 screws to attach front and rear mounting brackets to each side of the switch unit. Torque the screws to approximately 30 inch-pounds (3.5 Nm).

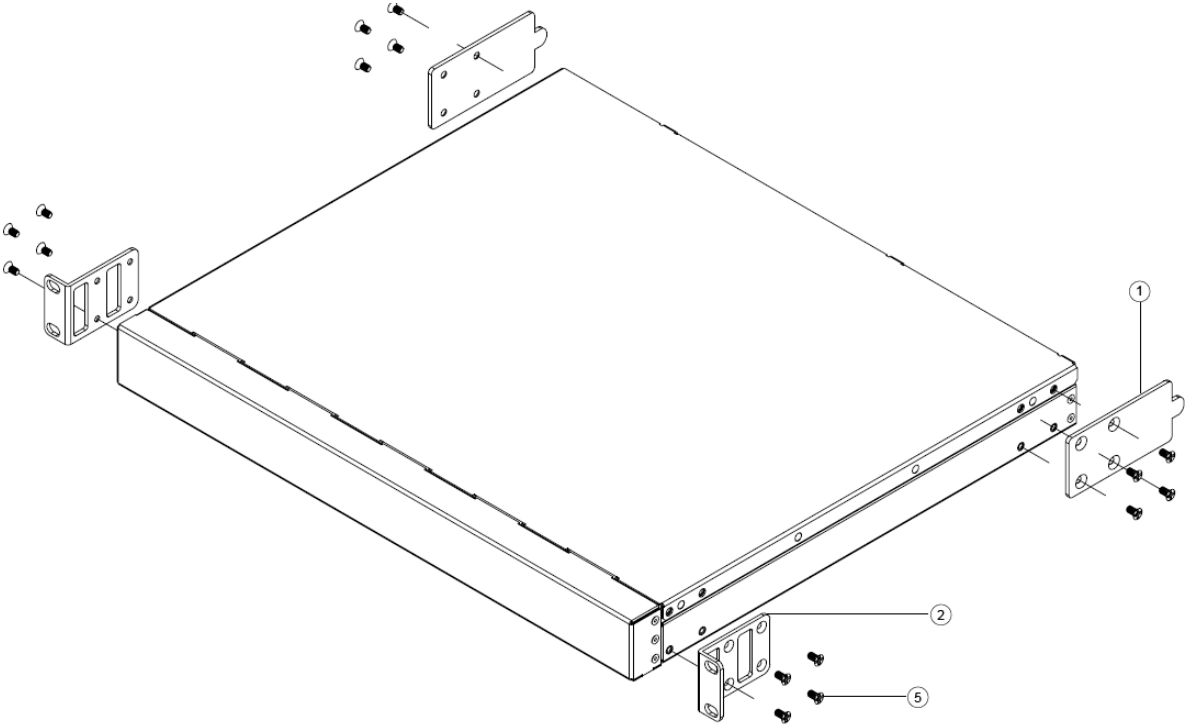


Figure 2-3 Attaching the mounting brackets

2. M6 screws, washers, and clip nuts are used to attach the alignment plate. Torque the screws to approximately 30 inch-pounds (3.5 Nm).

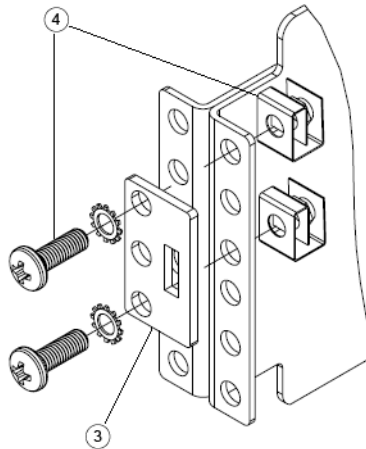


Figure 2-4 Attaching the alignment plate

3. M6 screws, washers, and clip nuts are used to mount the switch unit into the rack. Torque the screws to approximately 30 inch-pounds (3.5 Nm).

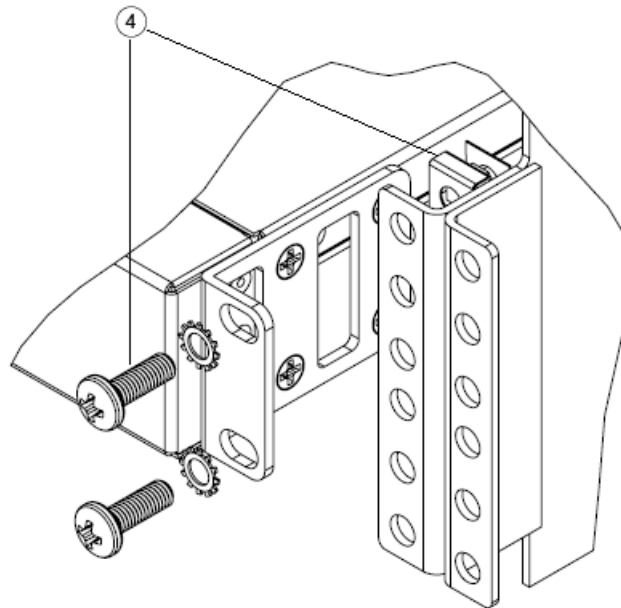


Figure 2-5 Rack-mounting the switch unit

Installing the RackSwitch G8100 in a 4-post rack

This section provides general information about installing the RackSwitch G8100 in a 4-post rack, including the IBM e1350 - Type 1410. For information about mounting the G8100 in other rack types, refer to the following sections:

- “Installing the RackSwitch G8100 in a standard equipment rack” on page 24
- “Installing the RackSwitch G8100 in an iDataPlex rack” on page 26

The 4-post mounting kit is ordered separately. The following table lists the parts included in the standard 4-post mounting kit.

Table 2-3 BN-4POST-RLS
4-Post Rack Mount Kit

Item number	Part number	Description	Quantity
1	BMC-00069-00	M6 clip nuts	8
2	BMC-00015-01	M6 locking washers	8
3	BMC-00049-00	M4 screws	16
4	BMC-00056-00	M6 screws	8
5	BMC-00084-00	M6 cage nuts	8
6	BMC-00054-00	M3 screws	4
7	BMM-00125-00	Front bracket	2
8	BMM-00126-00	Rear bracket	2

The e1350 -Type 1410 mounting kit is ordered separately. The following table lists the parts included in the mounting kit.

Table 2-4 BN-MNT-HZ-RLS
Type 1410 Rack Mount Kit

Item number	Part number	Description	Quantity
1	BMM-00065-00	Left bracket	1
2	BMM-00067-00	Right bracket	1
3	BMM-00089-00	Filler plate	1
4	BMC-00056-00	M6 screws	12
4	BMC-00015-01	M6 locking washers	12
4	BMC-00069-00	M6 clip nuts	8
5	BMC-00049-00	M4 screws	16

Perform the following steps to mount the RackSwitch G8100 into a standard 4-post rack.

1. Use the M4 screws to attach a horizontal rail to each side of the switch. Torque the screws to approximately 10 inch-pounds (1.1 Nm).

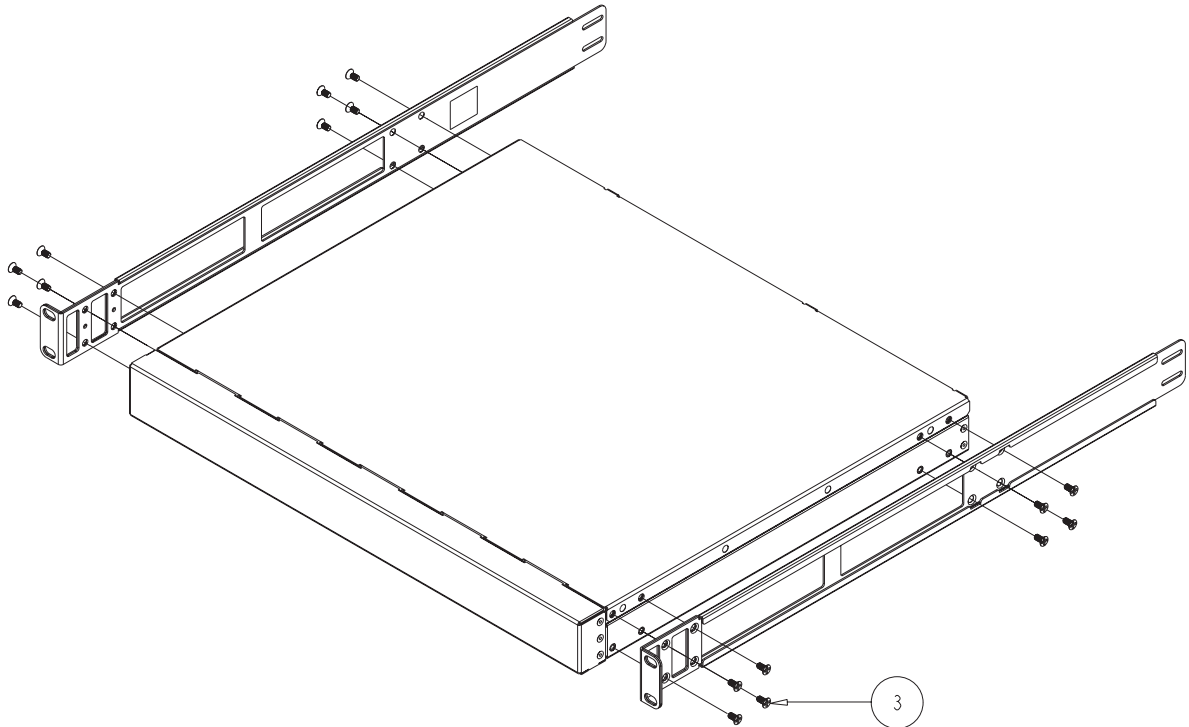


Figure 2-6 Attaching the horizontal rail

- 2. M6 screws, washers, and clip nuts are used to connect the horizontal rail to the front posts in the rack. Torque the screws to approximately 70 inch-pounds (8.0 Nm).

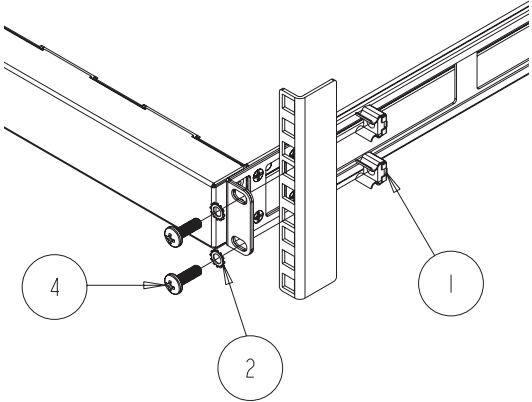


Figure 2-7 Rack-mounting the switch unit

- 3. The rear mounting brackets are secured to the rack with M6 screws, washers, and clip nuts. Torque the screws to approximately 30 inch-pounds (3.5 Nm).

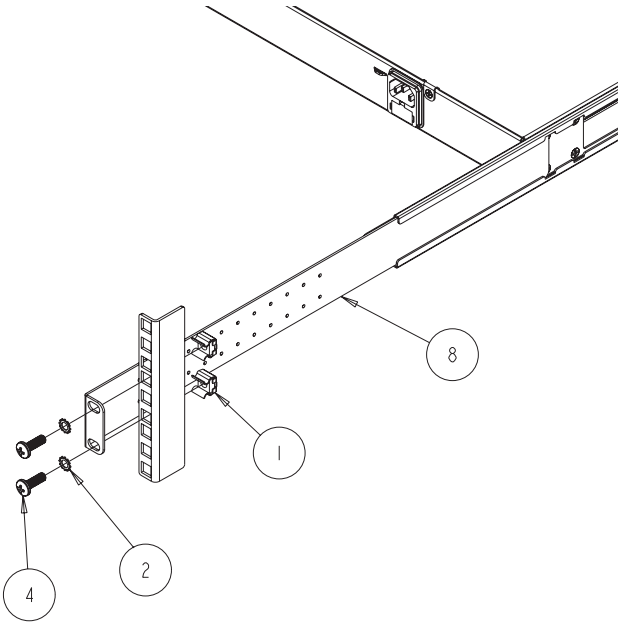


Figure 2-8 Attaching rear mounting brackets

4. The front mounting brackets and the rear mounting brackets are secured with M3 screws. Torque the screws to approximately 4 inch-pounds (0.5 Nm).

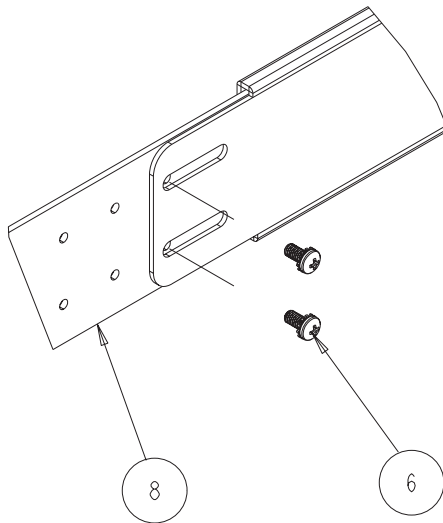


Figure 2-9 Securing the rear bracket to the front bracket

Initializing the RackSwitch G8100

When you plug in the G8100 power cord, the switch initializes automatically.



CAUTION—The G8100 does not have a power switch. When you connect the power cord to a suitable, energized AC power outlet, the switch powers up immediately.

Disconnecting the power cord is the only way to power down the G8100. Always connect the power cord in a location that is quickly and safely accessible.

The following LEDs indicate the overall system status:

- Power Supply = Solid Green if both power cords are connected, blinking green if only one power cord is connected
- Fan = Solid Green if all fans are running, blinking green if there is a fan failure

Use the console cable (null modem) to connect the RS-232 serial port on the switch unit's front panel to a terminal or a PC running a terminal emulation program. You can access the command-line interface to perform initial configuration tasks.

The console port's terminal-emulation requirements are as follows:

- Default baud rate = 9600 bps
- Character size = 8 characters
- Parity = none
- Stop bits = 1
- Data bits = 8
- Flow control = none

The switch performs initial self tests, and displays the `Password:` prompt, similar to the following screen:

```
Memory Test .....  
Production Mode  
PPCBoot 0.0.0.10 (new flash)  
Memory Test (0x00) .....PASSED  
  
...  
  
Blade Network Technologies RS 8100  
  
Jan 1 00:01:27 2008:  
NOTICE-5:Interface Oper Status Indication - Port 7 State UP  
  
Password:
```

At the **Password:** prompt, enter the switch password, and press **Enter**.
The default password is admin

Default configuration

The switch software contains default configuration files that are loaded at the factory. The default configuration is part of the software; it cannot be deleted or changed. The default settings allow the switch to perform basic functions with minimal effort by the system administrator.

Configuring the management interface

To manage the switch using Telnet, SNMP, or a Web browser, you must configure an IP interface. Configure the following IP parameters:

- IP address
- Subnet mask
- Gateway address

1. **Log on to the switch.**
2. **Enter Global Configuration mode.**

```
RS G8100> enable
RS G8100# configure terminal
```

3. **Configure the management IP address, subnet mask, and gateway.**

```
RS G8100 (config)# interface ip-mgmt address 10.10.10.2
RS G8100 (config)# interface ip-mgmt netmask 255.255.255.0
RS G8100 (config)# interface ip-mgmt enable
RS G8100 (config)# interface ip-mgmt gateway 10.10.10.1
RS G8100 (config)# interface ip-mgmt gateway enable
RS G8100 (config)# exit
```

Once you configure the IP address for your switch, you can connect to the management port and use the Telnet program from an external management station to access and control the switch. The management station and your switch must be on the same IP subnet.

The G8100 supports a command-line interface (CLI) that you can use to configure and control the switch using Telnet. You can use the CLI to perform many basic network management functions. In addition, you can configure the switch for management using an SNMP-based network management system or a Web browser.

For more information about using the CLI, refer to the RackSwitch G8100 *Command Reference*.

Installing a SFP+ transceiver

The RackSwitch G8100 supports the following Small Form Factor Pluggable (SFP+) transceivers:

- SFP+ 10GBase-SR Short Range Transceiver (BN-CKM-SP-SR)

SFP+ optical transceiver

The G8100 only accepts approved SFP+ transceivers. The SFP+ optical transceiver provides two fiber-optic cable connectors for connecting to external ports.



CAUTION—Class 1 Laser Product

Do not look directly into a fiber-optic transceiver or into the ends of fiber-optic cables. Fiber-optic transceivers and fiber-optic cable connected to a transceiver emit laser light that can damage your eyes.

Do not leave a fiber-optic transceiver uncovered except when inserting or removing cable.

The safety cap keeps the port clean and prevents accidental exposure to laser light.

Always inspect and clean the LC connector end faces before making any connections.

Perform the following steps to install an SFP+ optical transceiver into a SFP+ slot on the G8100.

NOTE – To avoid damage to the cable or the SFP+ transceiver, do not connect the fiber-optic cable before you install the transceiver.

- 1. Remove the safety cap and pull the locking lever into the down (unlocked) position.**
- 2. Insert the transceiver into the port until it clicks into place. Use minimal pressure when you insert the transceiver into the slot. Do not use excessive force when you insert the transceiver; you can damage the transceiver or the SFP+ slot.**

The transceiver has a mechanical guide key to prevent you from inserting the transceiver incorrectly.

- 3. Pull up the locking lever to lock the transceiver into place.**
- 4. Connect the fiber-optic cable.**

To remove a SFP+ transceiver, disconnect the fiber-optic cable, and pull down the locking lever to release the transceiver. After you remove the transceiver, replace the safety cap.

Troubleshooting

This section contains basic troubleshooting information. Use it to help resolve problems that may occur during installation and operation of your switch. If you have problems accessing the switch or working with switch software, refer to your RackSwitch G8100 *Application Guide* or *Command Reference*.

If you need additional technical assistance, refer to [“How to get help” on page 6](#).

System LEDs do not light

Symptom: The Power Supply and Fan LEDs do not light. Note that system LEDs are operational only after the switch unit initializes (boots).

Solution: Check the power cord(s) to make sure there is a proper connection to the power plug(s). Verify that AC power is available from the power source.

Port link LED does not light

Symptom: Port link LED does not light.

Solution 1: Check the port configuration in software (refer to your *Command Reference*).

If the port is configured with a specific speed or duplex mode, check the other device to verify that it is set to the same configuration. If the switch port is set to autonegotiate, verify that the other device is set to autonegotiate.

Solution 2: Check the cables that connect the port to the other device. Make sure they are connected properly. Verify that you are using the correct cable type.

Temperature sensor warning

Symptom: A temperature warning is displayed on the management console.

Solution: Make sure that the air circulation vents on the front and back of the switch are free from obstruction by cables, panels, rack frames, or other materials.

Make sure that all cooling fans inside the switch are running. The Fan LED blinks if there is a failure of one or more fans. The following command displays fan status:

```
show sys-info
```

If any fan stops during switch operation, contact Customer Support.

It may be necessary to cool the room to a lower temperature or provide a fan for greater air circulation. Resolve the room's cooling and circulation problems before turning the switch on.

Switch does not initialize (boot)

Symptom: All the switch LEDs stay on, and the command prompt does not appear on the console.

Solution: The operating system may have been damaged. Use the console port to perform a serial upgrade of the switch software. Refer to your *Command Reference*.

Appendix

Safety and compliance statements

Safety messages

This section lists the safety messages that appear within this manual.



CAUTION—To reduce the risk of electric shock, use only power cords that have a grounding path, and always connect the power cord to a properly grounded power outlet.

ATTENTION—Afin de réduire les risques de chocs électriques, utilisez toujours une prise de secteur courant alternatif munie d'une mise à la terre et branchez le fil électrique à une prise de courant proprement installée.

PRECAUCIÓN—Para reducir el riesgo de la descarga eléctrica, utilice solamente los cables eléctricos que tienen una trayectoria que pone a tierra, y para conectar siempre el cable eléctrico con un enchufe de energía correctamente puesto a tierra.

VORSICHT—Um die Gefahr des elektrischen Schlages zu verringern, benutzen Sie nur Netzanschlußkabeln die einen Massenverbindung haben, und schliessen Sie das Netzanschlußkabel nur an einen richtig geerdeten Elektroanschluß.



DANGER—Electrical current from power, telephone, and communication cables is hazardous. To avoid a shock hazard:

- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
 - Connect all power cords to a properly wired and grounded electrical outlet.
 - Connect to properly wired outlets any equipment that will be attached to this product.
 - When possible, use one hand only to connect or disconnect signal cables.
 - Never turn on any equipment when there is evidence of fire, water, or structural damage.
 - Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.
 - Disconnect the power cord before installing, uninstalling, or moving this product.
-



DANGER—Le courant électrique de câble d'alimentation, de câble téléphonique, et de câbles de communication est dangereux. Pour éviter un risque de choc:

- Ne branchez ni ne débranchez les câbles ou ne procédez à l'installation, l'entretien, ou la reconfiguration de ce produit pendant un orage électrique.
 - Reliez tous les câbles de tension à une sortie électrique correctement installée avec prise à terre.
 - Tout équipement attaché à ce produit doit être connecté à une prise de courant proprement installée.
 - Si possible, utilisez une main seulement pour brancher ou débrancher les câbles de signaux.
 - Ne mettez jamais en marche un équipement quand il y a évidence de feu, d'eau, ou de dommages structureaux.
 - Débranchez les câbles de tension, les systèmes de télécommunications, les réseaux, et les modems attachés avant que vous ouvriez les couvercles du dispositif, à moins d'instructions particulières notées dans les procédures d'installation et de configuration.
 - Débranchez le cordon de tension avant d'installer, de démanteler ou de déplacer ce produit.
-



PELIGRO—La corriente eléctrica de la energía, del teléfono, y de los cables de la comunicación es peligrosa. Para evitar un peligro de choque:

- No conecte ni desconecte ninguna cables o no realice la instalación, el mantenimiento, o la reconfiguración de este producto durante una tormenta eléctrica.
 - Conecte todos los cables eléctricos con un enchufe eléctrico correctamente atado con alambre y puesto a tierra.
 - Conecte con los enchufes correctamente atados con alambre cualquier equipo que sea unido a este producto.
 - Cuando es posible, utilice una mano para conectar o para desconectar solamente los cables de la señal.
 - Nunca gire cualquier equipo cuando hay evidencia del fuego, del agua, o del daño estructural.
 - Desconecte los cables eléctricos, los sistemas de las telecomunicaciones, las redes, y los módems unidos antes de que usted abra las cubiertas del dispositivo, a menos que esté mandado de otra manera en los procedimientos de la instalación y de la configuración.
 - Desconecte el cable eléctrico antes de instalar, de uninstaling, o de mover este producto.
-



GEFAHR—Elektrischer Strom von Strom-, vom Telefon- und Kommunikations-Kabeln ist gefährlich. Um eine Schlaggefahr zu vermeiden:

- schließen Sie an oder trennen Sie keine Kabel oder führen Sie keine Installation, Wartung oder Neukonfiguration dieses Produktes während eines Gewitters durch.
 - schließen Sie alles Netzanschlußkabel an einen richtig verdrahteten und geerdeten elektrischen Anschluß an.
 - schließen Sie diesem Produkt nur an Geaete mit mit korrekte angeschlossene Stromverbindungen.
 - wenn möglich, benutzen Sie nur einen Hand, um einen Signalkabel anzuschließen oder zu trennen.
 - schalten Sie nie Geaete ein, wenn es Beweise fuer Feuer- Wasser- oder der Strukturellen-Beschädigungen gibt.
 - trennen Sie das angebrachte Netzanschlußkabel, die Nachrichtentechniksysteme, die Netze und das Modem, bevor Sie die Abdeckungen des Gerates öffnen, es sei denn Sie werden anders angewiesen in den Installations- und Konfigurations-hinweise.
 - trennen Sie das Netzanschlußkabel, bevor Sie dieses Produkt installieren, de-installieren oder umziehen.
-



CAUTION—Do not stack other devices on top of the switch unit in the rack. The mounting brackets cannot support multiple devices. Use mounting brackets to secure each device to the rack.

ATTENTION—N'empilez aucun appareil supplémentaire sur le commutateur sans support additionnel. Les supports du châssis ne peuvent soutenir plusieurs appareils. Utilisez les supports métalliques pour fixer chaque appareil au châssis.

PRECAUCIÓN—No apile otros dispositivos encima de la unidad del interruptor en el estante. Los soportes de montaje no pueden apoyar los dispositivos múltiples. Utilice los soportes de montaje para asegurar cada dispositivo al estante.

VORSICHT—Stapeln Sie keine andere Geräte auf die Schaltermaßeinheit im Einbaugeschäuse. Die Schienenplatten können nicht mehrere Geräte tragen. Benutzen Sie immer Schienenplatten, um jedes Gerät an die Einbaugeschäuse zu befestigen.



CAUTION—The G8100 does not have a power switch. When you connect the power cord to a suitable, energized AC power outlet, the switch powers up immediately. Disconnecting the power cord is the only way to power down the G8100. Always connect the power cord in a location that is quickly and safely accessible.

ATTENTION—Le G8100 ne dispose pas d'un commutateur de puissance. Quand vous connectez le cordon sous tension à la prise secteur de courant alternatif, le commutateur est activé immédiatement.

La seule manière d'éteindre le commutateur est de débrancher le câble d'alimentation (courant alternatif). Assurez-vous de connecter le câble d'alimentation à un endroit qui permet un accès rapide et sans risque.

PRECAUCIÓN—El G8100 no tiene un interruptor. Cuando usted conecta el cable eléctrico con un conveniente, enchufe energizado de la corriente ALTERNA, las energías del interruptor para arriba inmediatamente.

Desconectar el cable eléctrico es la única manera de accionar abajo el G8100. Conecte siempre el cable eléctrico en una localización que esté rápidamente y con seguridad accesible.

VORSICHT—Das G8100 hat keinen Netzschalter. Wenn Sie das Netzanschlußkabel an ein verwendbares Steckdose anschließen, schaltet das Gerät sofort ein.

Das Netzanschlußkabel zu trennen ist die einzige Weise, das G8100 abzuschalten. Schließen Sie immer das Netzanschlußkabel in einer Einbaustelle an, die schnell und sicher zugänglich ist.



CAUTION—Class 1 Laser Product

- Do not look directly into a fiber-optic transceiver or into the ends of fiber-optic cables.
- Fiber-optic transceivers and fiber-optic cable connected to a transceiver emit laser light that can damage your eyes.
- Do not leave a fiber-optic transceiver uncovered except when inserting or removing cable.
- The safety cap keeps the port clean and prevents accidental exposure to laser light.
- Always inspect and clean the LC connector end faces before making any connections.

ATTENTION—Le produit de laser de la classe 1

- Ne regardez pas directement dans un émetteur/récepteur de fibre optique ou dans l'extrémité du câble de fibre optique.
- Les émetteurs/récepteurs de fibre optique et de câble de fibre optique sont reliés à un émetteur/récepteur qui émet un faisceau lumineux qui peut endommager la rétine.
- Ne laissez jamais un émetteur/récepteur de fibre optique à découvert excepté en insérant ou en enlevant le câble.
- Le capuchon de sûreté garde l'orifice propre et empêche l'exposition accidentelle à la lumière de laser.
- Inspectez et nettoyez toujours les facettes d'extrémité du connecteur de LC avant d'établir toutes les connections.

PRECAUCIÓN—Producto Del Laser De la Clase 1

- No mire directamente en un transmisor-receptor fiber-optic o en los extremos de cables fiber-optic.
- Los transmisores-receptores fiber-optic y el cable fiber-optic conectaron con un transmisor-receptor emiten la luz laser que puede dañar sus ojos.
- No deje un transmisor-receptor fiber-optic destapado excepto al insertar o quitando el cable.
- El casquillo de seguridad guarda el portuario para limpiar y previene la exposición accidental a la luz laser.
- Examine y limpie siempre las caras del extremo del conector del LC antes de hacer cualesquiera conexiones.

VORSICHT—Kategorie 1 Laser Produkt

- schauen Sie nicht direkt in einen Glasfaserlautsprecherempfänger oder in der offene Ende der Glasfaserkabel.
 - Glasfasertransceiver und Glasfaserkabel an einen Transceiver angeschlossen strahlen Laserlicht aus, das Ihre Augen beschädigen kann.
 - lassen Sie nicht einen Glasfasertransceiver unbedeckt, wenn Sie Kabel einsetzen oder entfernen. - der Sicherheitsverschluß hält das Port sauber und verhindert versehentliche.
 - Ausstrahlung vom Laserlicht. kontrollieren Sie und säubern Sie die LC Stecker-Ende, bevor Sie irgendwelche Verbindungen durchfuehren.
-

Compliance statements

This section contains regulatory compliance statements for the RackSwitch G8100.

Blade Network Technologies commitment to WEEE

The EU Directive of the EU Parliament and Council on Waste Electrical and Electronic Equipment (WEEE) became effective on 13 August 2005. Individual EU Member State implementations were made effective, or will be effective, during 2005 and 2006.

BLADE is committed to be a responsible member of the global community in providing management of WEEE and is complying with all the obligations pursuant the WEEE Directive and its implementation in National Member State legislation as applicable.

Information for pursuing proper means for collection and treatment of WEEE from commercial customers resulting from products put on the market may be obtained by visiting our website:

<http://www.bladenetwork.net/weee>

Federal Communications Commission (FCC) statement

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.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Blade Network Technologies, Inc. is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Industry Canada Class A emission compliance statement

This Class A digital apparatus complies with Canadian ICES-003.

Avis de conformité à la réglementation d'Industrie Canada

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Australia and New Zealand Class A statement

Attention: 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 adequate measures.

European Union EMC Directive conformance statement

This product is in conformity with the protection requirements of EU Council Directive 2004/108/EC on the approximation of the laws of the Member States relating to electromagnetic compatibility. Blade Network Technologies, Inc. cannot accept responsibility for any failure to satisfy the protection requirements resulting from a nonrecommended modification of the product, including the fitting of unsupported option cards.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to CISPR 22/European Standard EN 55022. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

Attention: 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 adequate measures.

NOM statement (Mexico only)

The following information is provided on the devices described in this document in compliance with the safety requirements of the Norma Oficial Mexicana (NOM):

Exporter:	Blade Network Technologies 2350 Mission College Blvd. Santa Clara, CA, 95054 USA
Importer:	IMPORSYS, S.A. de C.V.28 de Diciembre No. 22 Col. Avante, C.P. 04460 México, D.F.
Input:	RackSwitch G8100 G8100F AC 100-240 V~ 1.5 50-60 Hz Chassis power consumption: 150W G8100R AC 100-240 V~ 1.5 50-60 Hz Chassis power consumption: 150W

Información NOM (unicamente para México)

La información siguiente se proporciona en el dispositivo o en los dispositivos descritos en este documento, en cumplimiento con los requisitos de la Norma Oficial Mexicana (NOM):

Exportador:	Blade Network Technologies 2350 Mission College Blvd. Santa Clara, CA, 95054 USA
Importer:	IMPORSYS, S.A. de C.V.28 de Diciembre No. 22 Col. Avante, C.P. 04460 México, D.F.
Input:	RackSwitch G8100 G8100F AC 100-240 V~ 1.5 50-60 Hz Consumo de energía del chasis:: 150W G8100R AC 100-240 V~ 1.5 50-60 Hz Consumo de energía del chasis:: 150W

MIC notice (Republic of Korea only)

This device has been approved for use in Business applications only per the Class A requirements of the Republic of Korea Ministry of Information and Communications (MIC). This device may not be sold for use in a non-business application.

Observe the Regulatory Marking label on the back or bottom of each switch for specific certification information pertaining to this model. Each RackSwitch G8100 model is approved for shipment to/usage in Korea and is labelled as such, with all appropriate text and the appropriate MIC reference number.

Japanese Voluntary Control Council for Interference (VCCI) statement

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づきクラス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。

Denan statement (Japan/Nippon only)

本製品を安全にご使用いただくため、以下のことにご注意ください。

- 接続ケーブル、電源コード、ACアダプタなどの部品は、必ず製品に同梱されている添付品または指定品をご使用ください。添付品・指定品以外の部品をご使用されることは動作不良、火災の原因となることがあります。
- 同梱されております付属の電源コードを他の機器には使用しないでください。本注意事項を守らないと、死亡や大怪我など人身事故の原因となることがあります。

有毒有害物质或元素名称及含量标识

Toxic / Hazardous Substances and Elements Table (RackSwitch G8100F/G8100R)

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr (VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
外部盖板 external covers	○	○	○	○	○	○
空气传动设备 air moving devices	×	○	○	○	○	○
处理器模块 processor modules	×	○	○	○	○	○
电缆组合件 cable assemblies	×	○	○	○	○	○
电源 power supply	×	○	○	○	○	○
有 mech 的电路卡 circuit cards with mechs	×	○	○	○	○	○
无 mech 的电路卡 circuit cards w/o mechs	×	○	○	○	○	○

○：表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T 11363—2006规定的限量要求以下。

o: Indicates that the content of the toxic and hazardous substance in all the homogeneous materials of the part is below the concentration limit requirement as described in SJ/T 11363-2006.

×：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T 11363—2006规定的限量要求。

x: Indicates that the content of the toxic and hazardous substance in at least one homogeneous material of the part exceeds the concentration limit requirement as described in SJ/T 11363-2006.

环保使用期限 (EPUP) 的免责条款: EPUP 规定的具体期限仅为符合中华人民共和国的相应的法律规定, 并非代表 **BNT** 向客户提供保证或负有任何义务。EPUP 中假定客户按照操作手册在正常情况下使用本产品。

Environmental Protection Use Period (EPUP) Disclaimer: The number provided as the EPUP is provided solely to comply with applicable laws of the People's Republic of China. It does not create any warranties or liabilities on behalf of BNT to customers. The EPUP assumes that the product will be used under normal conditions in accordance with the BNT operating manual.

Blade Part #: BN-8100R-F and BN-8100F-F
IBM Part #: 46C3411 and 46C3415

RackSwitch G8100 Installation Guide



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