

# QUICK INSTALLATION AND CONFIG GUIDE

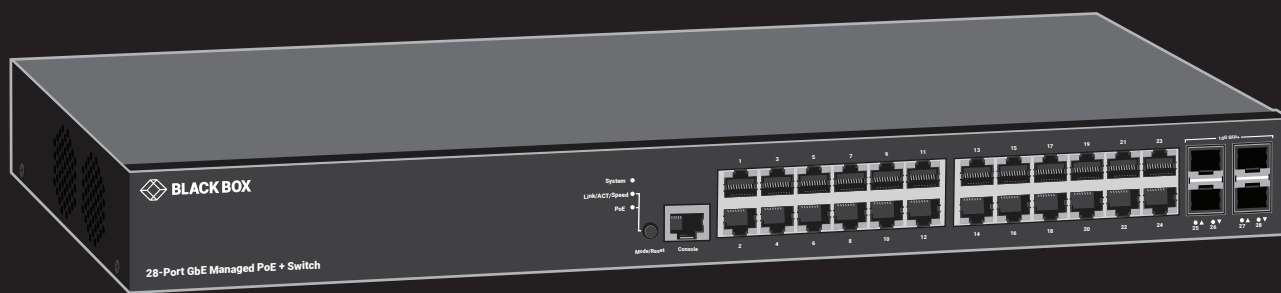
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LPB3010A, LPB3028A, LPB3052A

# GIGABIT MANAGED POE+ SWITCH

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24/7 TECHNICAL SUPPORT AT 1.877.877.2269 OR VISIT [BLACKBOX.COM](http://BLACKBOX.COM)



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# CHAPTER 1: OVERVIEW

## 1.1 INTRODUCTION

This user guide describes how to install, configure, and troubleshoot the 10-, 28-, or 52-Port Gigabit Managed PoE+ Switch. Three models are available:

- ◆ LPB3010A has (8) PoE+ 130 W and (2) 1G/10G SFP/SFP+ module slots
- ◆ LPB3028A has (24) PoE+ 370 W and (4) 1G/10G SFP/SFP+ module slots
- ◆ LPB3052A has (48) PoE+ 740 W and (4) 1G/10G SFP/SFP+ module slots

By reading this user guide, users can perform the following tasks:

- ◆ Check the switch status by reading the LED behavior
- ◆ Reset the switch or restore the switch to factory defaults
- ◆ Install the switch
- ◆ Use a Web browser to initially configure the switch
- ◆ Troubleshoot the switch

## 1.2 WHAT'S INCLUDED

Your package should include the following items. If anything is missing or damaged, contact Black Box Technical Support at 877-877-2269 or [info@blackbox.com](mailto:info@blackbox.com)

- ◆ (1) 10-, 28-, or 52-Port Gigabit Managed PoE+ Switch
- ◆ (1) AC power cord
- ◆ (4) adhesive rubber feet
- ◆ (1) mounting kit
- ◆ (1) RJ-45 to DB9 serial console cable

# CHAPTER 1: OVERVIEW

## 1.3 HARDWARE DESCRIPTION

### 1.3.1 FRONT PANEL OF THE SWITCH

Figure 1-1 shows the front panel of the switch. Table 1-1 describes its components.

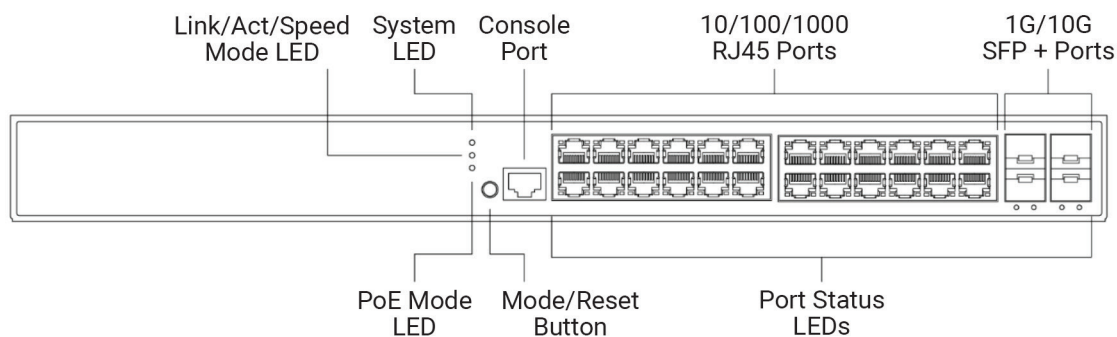


FIGURE 1-1. FRONT PANEL OF THE SWITCH

NOTE: The 28-port switch is shown. The 10- and 52-port switches are similar, but have a different number of ports.

TABLE 1-1. FRONT-PANEL SWITCH COMPONENTS

COMPONENT	DESCRIPTION
(1) Link/Act/Speed Mode LED	Indicates the mode of all ports on the switch. Users can press the Mode button sequentially to switch among the two different modes (Link/Activity/Speed mode and PoE mode).
(1) System LED	Indicates if the switch is powered up correctly or not, or, indicates if there is a system alarm triggered for troubleshooting.
(1) Console port	Links to RS-232 console for management
(8), (24), or (48) 10/100/1000 RJ-45 ports	Connect to twisted-pair devices
(2) or (4) 1G/10G SFP+ Ports	Connect to 1G/10G fiber uplinks
(1) PoE Mode LED	Lights when the port is using Power over Ethernet (PoE)
(1) Mode/Reset button	Press to select the mode, or to reset the switch
(10), (28), or (52) Port Status LEDs	Indicates the current status of each port. Users can check these LEDs to understand the port status in different modes, after changing the mode by pressing the Mode button.

## 1.3.2 BACK PANEL OF THE SWITCH

Figure 1-2 shows the back panel of the switch. Table 1-2 describes its components.



FIGURE 1-2. BACK PANEL SWITCH COMPONENTS

TABLE 1-2. BACK-PANEL SWITCH COMPONENTS

COMPONENT	DESCRIPTION
(1) 3-prong power connector	Links to 100 to 240 VAC power

## 1.3.3 LED DESCRIPTIONS

The LEDs on the front panel provide users with switch status checking and monitoring. There are three types of LEDs:

- ◆ System LED: Indicates if the switch is powered up correctly or not, or indicates if there is a system alarm triggered for troubleshooting.
- ◆ Mode LEDs: Indicates the mode of all ports on the switch. Users can press the Mode button sequentially to switch among the two different modes (Link/Activity/Speed mode and PoE mode).
- ◆ Port Status LEDs: Indicates the current status of each port. Users can check these LEDs to understand the port status in different modes, after changing the mode by pressing the Mode button.

The following table details the functions and descriptions of various LED indicators.

## CHAPTER 1: OVERVIEW

**TABLE 1-3. SYSTEM LED INDICATOR**

LED	COLOR	STATE	DESCRIPTION
System	Green	On	The switch is powered ON correctly.
		Off	The switch is not receiving power.
	Red	On	An abnormal state, such as exceeding operating temperature range, has been detected in the switch.

**TABLE 1-4. MODE LED INDICATORS**

LED	COLOR	STATE	DESCRIPTION
Link/Act/Speed	Green	On	The Port Status LEDs are displaying link status, network activity, and speed of each port.
PoE	Green	On	The RJ-45 Port Status LEDs are displaying PoE powering status of each port.

NOTE: Press the MODE button for less than 2 seconds to change LED modes (Link/Act/Speed Mode or PoE Mode).

**TABLE 1-5. PORT STATUS LED INDICATORS**

LED	COLOR	STATE	DESCRIPTION
RJ-45 Ports	Green	On	The port is enabled and has established a link to the connected device, and the connection speed is 1000 Mbps.
	Green	Blinking	The port is transmitting/receiving packets, and the connection speed is 1000 Mbps.
	Amber	On	The port is enabled and has established a link to the connected device, and the connection speed is 10/100 Mbps.
	Amber	Blinking	The port is transmitting/receiving packets, and the connection speed is 10/100 Mbps.
	Amber	Off	The port has no active network cable connected, or has not established a link to the connected device. Otherwise, the port may have been disabled through the switch user interface.
SFP+ Ports	Blue	On	The port is enabled and has established a link to the connected device, and the connection speed is 10 Gbps.
	Blue	Blinking	The port is transmitting/receiving packets, and the connection speed is 10 Gbps.
	Green	On	The port is enabled and has established a link to the connected device, and the connection speed is 1 Gbps.
	Green	Blinking	The port is transmitting/receiving packets, and the connection speed is 1 Gbps.
	Green	Off	The port has no active network cable connected, or it has not established a link to connected device. Otherwise, the port may have been disabled through the switch user interface.



**TABLE 1-6. POE MODE LED INDICATORS**

LED	COLOR	STATE	DESCRIPTION
RJ-45 Ports	Green	On	The port is enabled and supplying power to connected device.
	Amber	On	An abnormal state, such as overload status, has been detected in the switch.
	Off	Off	The port has no active network cable connected, or it is not connected to a PoE PD device. Otherwise, the port may have been disabled through the switch user interface.

## 1.3.4 MODE/RESET BUTTON

Press the Mode/Reset Button for a certain period of time to perform the following tasks.

- ◆ Change Port Status LED Mode: Read the port status correctly in the two different modes (Link/Act/Speed mode or PoE mode).
- ◆ Reset the Switch: Reboot and get the switch back to the previous configuration settings saved.
- ◆ Restore the Switch to Factory Defaults: Restore the original factory default settings back to the switch.

**NOTE:** According to the next table, users can easily judge which task is being performed by reading the LED behaviors while pressing the Mode/Reset button. Once the LED behaviors are correctly displayed, release the button.

**TABLE 1-7. MODE/RESET BUTTON DESCRIPTIONS**

TASK TO BE PERFORMED	TIME PERIOD TO PRESS THE BUTTON	SYS LED BEHAVIOR	PORT STATUS LED BEHAVIOR
Change LED Mode	0 to 2 seconds	On Green	LED status will be changed according to the mode selected.
Reset the Switch	2 to 7 seconds	Blinking Green	ALL LEDs Light OFF
Restore to Defaults	7 to 12 seconds	Blinking Green	ALL LEDs Stay ON

## CHAPTER 2: INSTALLING THE SWITCH

**NOTE:** The switch is an indoor device. If you need to use it to connect outdoor devices such as outdoor IP cameras or outdoor Wi-Fi® APs with cable, then you need to install an arrester on the cable between outdoor device and the switch.

### 2.1 MOUNTING THE SWITCH IN A 19-INCH RACK

**Step 1:** Attach the mounting brackets to both sides of the chassis. Insert screws and tighten them with a screwdriver to secure the brackets.

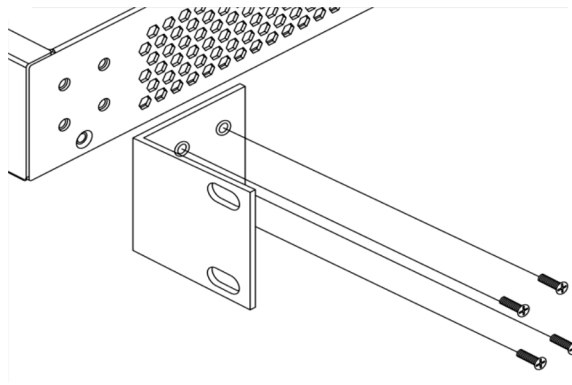


FIGURE 2-1. ATTACHING BRACKETS TO THE SWITCH

**Step 2:** Place the switch on a rack shelf in the rack. Push it in until the oval holes in the brackets align with the mounting holes in the rack posts.

**Step 3:** Attach the brackets to the posts. Insert screws and tighten them.

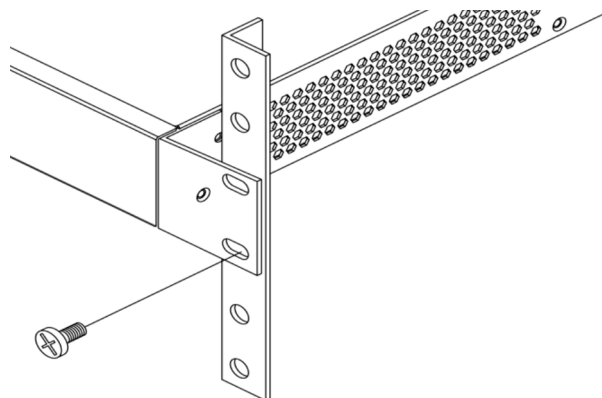


FIGURE 2-2. ATTACHING BRACKETS TO THE RACK POST



## CHAPTER 2: INSTALLING THE SWITCH

### 2.2 MOUNTING THE SWITCH ON DESK OR SHELF

**Step 1:** Verify that the workbench is sturdy and reliably grounded.

**Step 2:** Attach the four adhesive rubber feet to the bottom of the switch.

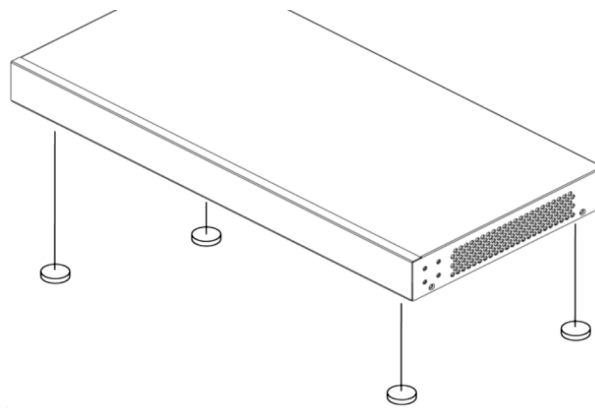


FIGURE 2-3. ATTACHING THE RUBBER FEET

### 2.3 CONNECTING THE AC POWER CORD

**Step 1:** Connect the AC power cord to the AC power receptacle of the switch.

**Step 2:** Connect the other end of the AC power cord to the AC power outlet.

**Step 3:** Check the SYS LED. If it is ON, the power connection is correct.

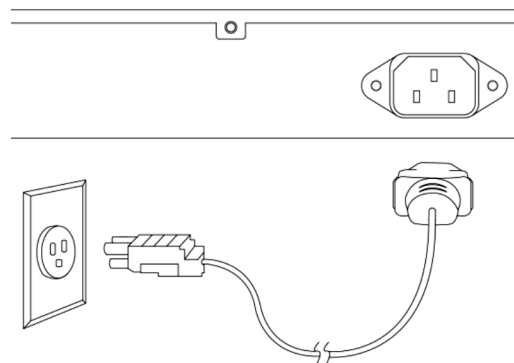


FIGURE 2-4. CONNECTING THE AC POWER CORD

## CHAPTER 2: INSTALLING THE SWITCH

### 2.4 INSTALLING SFP+ MODULES

You can install or remove an SFP+ module from an SFP+ port without having to power off the switch.

**Step 1:** Insert the module into the SFP+ port.

**Step 2:** Press firmly to ensure that the module seats into the connector.

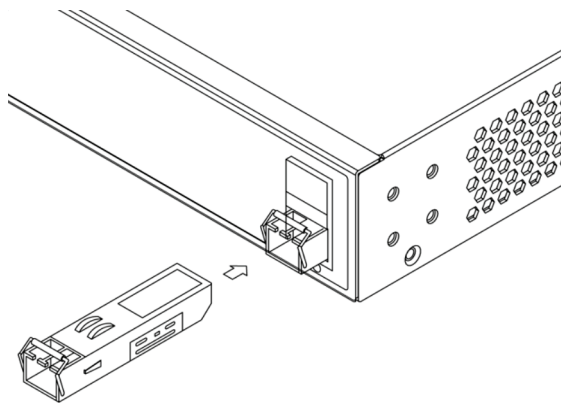


FIGURE 2-5. INSTALLING AN SFP+ MODULE INTO AN SFP+ PORT

**NOTE:** The SFP+ ports should use a UL Listed optional transceiver, rated 3.3 VDC, Laser Class 1. Compatible transceivers are listed in the next table.

COMPATIBLE SFP MODULES		
PART NUMBER	DESCRIPTION	DISTANCE
<b>1-GBPS CONNECTIONS</b>		
LFP441	SFP 1.25-Gb, 850-nm Multimode Fiber, LC	550 m
LFP442	SFP 1.25-Gb, 1310-nm Singlemode Fiber, LC	20 km
LFP412	SFP with Extended Diagnostics - 1250-Mbps Multimode Fiber, 1310-nm	2 km
LFP413	SFP with Extended Diagnostics - 1250-Mbps Singlemode Fiber, 1310-nm	10 km
LFP414	SFP with Extended Diagnostics - 1250-Mbps, Singlemode Fiber, 1310-nm	30 km
LFP416	SFP 1250-Mbps, Extended Diagnostics, 10/100/1000BASE-T, SGMII Interface, RJ-45	100 m
<b>10-GBPS CONNECTIONS</b>		
LSP441	SFP+ 10GBASE-SR Multimode Fiber, 850-nm, LC	300 m
LSP442	SFP+ 10GBASE-LR Singlemode Fiber, 1310-nm, LC	20 km
LSP443	SFP+ 10G Copper	100 m
LSP421	SFP+ 10GBASE-SR Multimode Fiber, 850-nm, LC, Extended Diagnostics	300 m
LSP422	SFP+ 10GBASE-LR Singlemode Fiber, 1310-nm, LC, Extended Diagnostics	10 km
LSP431	SFP+ 10GBASE-SR Multimode Fiber, 850-nm, LC, Ext. Diag., Ext. Temp.	300 m

## CHAPTER 3: INITIAL CONFIGURATION OF THE SWITCH

### 3.1 INITIAL SWITCH CONFIGURATION USING WEB BROWSERS

After powering up the switch for the first time, you can perform the initial switch configuration using a web browser. For managing other switch features, refer to the Web interface user guide for details.

To begin with the initial configuration stage, you need to reconfigure your PC's IP address and subnet mask to make sure that the PC can communicate with the switch. After changing the PC's IP address (for example, 192.168.1.250), you can access the Web interface of the switch using the switch's default IP address as shown next.

NOTE: The factory default IP address of the switch is 192.168.1.1 The factory default Subnet Mask of the switch is 255.255.255.0

### 3.2 INITIAL SWITCH CONFIGURATION PROCEDURE

The initial switch configuration procedure is as follows:

**Step 1:** Power up the PC that you will use for the initial configuration. Make sure the PC has an Ethernet RJ-45 connector to be connected to the switch via standard Ethernet LAN cable.

**Step 2:** Reconfigure the PC's IP address and Subnet Mask as described next, so that it can communicate with the switch. The method to change the PC's IP address, for example, for a PC running Windows® 7/8.x/10, is as follows:

**Step 2a:** Type "network and sharing" into the Search box in the Start Menu.

**Step 2b:** Select Network and Sharing Center.

**Step 2c:** Click on Change adapter settings on the left of the PC screen.

NOTE: Users can also skip steps 2a to 2c, by pressing WinKey+R and typing the "ncpa.cpl" command to get to step 2d directly.

**Step 2d:** Right-click on your local adapter and select Properties.

**Step 2e:** In the Local Area Connection Properties window highlight Internet Protocol Version 4 (TCP/IPv4), then click the Properties button.

NOTE: Be sure to record all your PC's current IP settings to be able to restore them later.

**Step 2f:** Select the radio button.

Use the following IP address and enter in the IP for the PC (e.g. any IP address not in use, and between 192.168.1.2 and 192.168.1.254), Subnet mask (e.g. 255.255.255.0), and the Default gateway that corresponds with your network setup. Then enter your Preferred and Alternate DNS server addresses.

**Step 2g:** Click OK to change the PC's IP address.

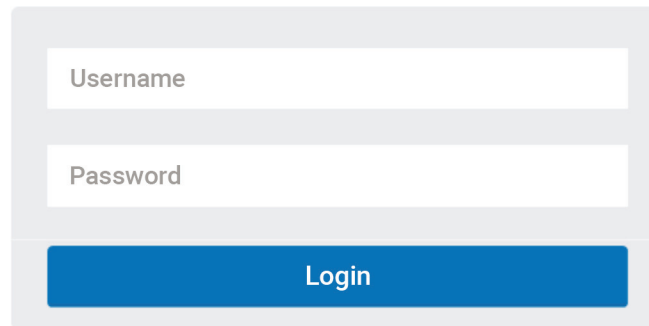
**Step 3:** Power up the switch to be initially configured, and wait until it has finished its start-up processes.

**Step 4:** Connect the PC to any port on the switch using a standard Ethernet cable, and check the port LED on the switch to make sure the link status of the PCs is OK.

**Step 5:** Run your Web browser on the PC and enter the factory default IP address to access the switch's Web interface.

If your PC is configured correctly, you will see the login page of the switch as shown next.

## CHAPTER 3: INITIAL CONFIGURATION OF THE SWITCH



The image shows a web interface login page. It consists of a light gray rectangular container. Inside the container, there are two white input fields stacked vertically. The top field is labeled "Username" and the bottom field is labeled "Password". Below these fields is a blue rectangular button with the word "Login" written in white text.

FIGURE 3-1. WEB INTERFACE LOGIN PAGE

If you do not see the login page, perform the following steps:

- ◆ Refresh the web page.
- ◆ Check to see if there is an IP conflict issue.
- ◆ Clean browser cookies and temporary internet files.
- ◆ Check your PC settings again and repeat step 2.

6. Enter the factory default username and password in login page. Click “Login” to log into the switch.

**NOTE:** The factory default Username of the switch is **admin**. There is no factory default Password of the switch.

## CHAPTER 4: TROUBLESHOOTING

The following table provides information for users to easily troubleshoot problems by taking actions based on the suggested solutions within.

**TABLE 4-1. TROUBLESHOOTING**

SYMPTOMS	POSSIBLE CAUSES	SUGGESTED SOLUTIONS
SYSTEM LED is Off	The switch is not receiving power.	<ol style="list-style-type: none"> <li>1. Check if correct power cord is connected firmly to the switch and to the AC outlet socket.</li> <li>2. Power cycle the switch by unplugging and plugging the power cord back into the switch.</li> <li>3. If the LED is still off, try to plug power cord into different AC outlet socket to make sure a correct AC source is supplied.</li> </ol>
SYSTEM LED is RED	An abnormal state has been detected by the switch.	Check the system log within the switch from WEB UI to understand the abnormal state (e.g. exceeding operating temperature range) and take corresponding actions to resolve.
Port Status LED is Off in the Link/Act/Speed Mode	The port is not connected or the connection is not working.	<ol style="list-style-type: none"> <li>1. Check if the cable connector plug is firmly inserted and locked into the port at both the switch and the connected device.</li> <li>2. Make sure the connected device is up and running correctly.</li> <li>3. If the symptom still exists, try a different cable or different port, in order to identify if it is related to the cable or specific port.</li> <li>4. Check if the port is disabled in the configuration settings via the WEB user interface.</li> </ol>
Port Status LED is Off in the PoE Mode	The port is not supplying power.	<ol style="list-style-type: none"> <li>1. Check if the cable connector plug is firmly inserted and locked into the port at both the switch and the connected device.</li> <li>2. Make sure the correct Ethernet cables are used.</li> <li>3. If the symptom still exists, try a different cable or different port, to identify if it is related to the cable or specific port.</li> <li>4. Check if the port is disabled in the configuration settings via WEB user interface.</li> </ol>

## APPENDIX A: REGULATORY INFORMATION

### A.1 FCC STATEMENT

This equipment generates, uses, and can radiate radio-frequency energy, and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio communication. It has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart B of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par Industrie Canada.



## APPENDIX A: REGULATORY INFORMATION

### A.2 NOM STATEMENT

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.
2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.
3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.
4. Todas las instrucciones de operación y uso deben ser seguidas.
5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc.
6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.
7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.
8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.
9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.
10. El equipo eléctrico deber ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.
11. El aparato eléctrico deberá ser conectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.
12. Precaución debe ser tomada de tal manera que la tierra física y la polarización del equipo no sea eliminada.
13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.
14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.
15. En caso de existir, una antena externa deberá ser localizada lejos de las líneas de energía.
16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.
17. Cuidado debe ser tomado de tal manera que objetos líquidos no sean derramados sobre la cubierta u orificios de ventilación.
18. Servicio por personal calificado deberá ser provisto cuando:
  - A: El cable de poder o el contacto ha sido dañado; u
  - B: Objetos han caído o líquido ha sido derramado dentro del aparato; o
  - C: El aparato ha sido expuesto a la lluvia; o
  - D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o
  - E: El aparato ha sido tirado o su cubierta ha sido dañada.

## APPENDIX B: DISCLAIMER/TRADEMARKS

### B.1 DISCLAIMER

Black Box Corporation shall not be liable for damages of any kind, including, but not limited to, punitive, consequential or cost of cover damages, resulting from any errors in the product information or specifications set forth in this document and Black Box Corporation may revise this document at any time without notice.

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# NOTES

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