

# STARTUP GUIDE

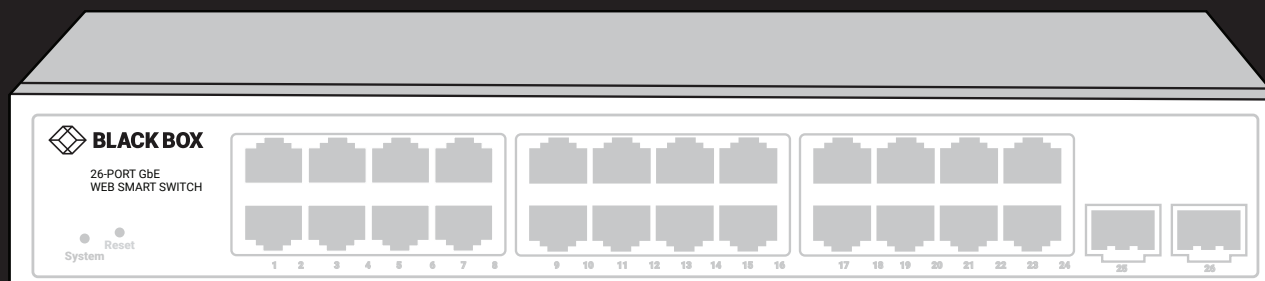
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LGB2118A-R2, LGB2126A

# GBE WEB SMART SWITCHES

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



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## DEFAULT SETTINGS

The switch's default values are listed below:

IP Address: 192.168.1.1

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.1.254

Username: admin

Password: <none> (Just press the Enter key.)



## SAFETY INFORMATION

### SAFETY INFORMATION

**CAUTION:** Circuit devices are sensitive to static electricity, which can damage their delicate electronics. Dry weather conditions or walking across a carpeted floor may cause you to acquire a static electrical charge.

To protect your device, always:

- ◆ Touch the metal chassis of your computer to ground the static electrical charge before you pick up the circuit device.
- ◆ Pick up the device by holding it on the left and right edges only.
- ◆ If you need to connect this device to an outdoor device, add an arrester on the cable between the outdoor device and this device.

**NOTE:** The switch is indoor device; if it will be used in an outdoor environment or connects with an outdoor device, you must use a lightning arrester to protect the switch.

**WARNING:**

- ◆ Self-demolition on the product is strictly prohibited. Damage caused by self-demolition will be charged repairing fees.
- ◆ Do not place product at outdoor or sandstorm..
- ◆ Before installation, make sure the input power supply and product specifications are compatible with each other.
- ◆ To reduce the risk of electric shock, disconnect all AC or DC power cord and RPS cables to completely remove power from the unit.
- ◆ Before importing/exporting a configuration, make sure the firmware version is always the same.
- ◆ After a firmware upgrade, the switch will replace the configuration automatically with the latest firmware version.

**WARNING: EYE HAZARD!** The SFP modules are Class 1 laser devices. Do not look directly at the beam coming from the transmit port.



## RELATED PUBLICATIONS/REVISION HISTORY

### RELATED PUBLICATIONS

The following publication gives specific information on how to operate and use the management functions of the switch:

- ◆ GUI User Guide

To download the user guide from [blackbox.com](http://blackbox.com):

1. Go to [www.blackbox.com](http://www.blackbox.com)
2. Enter the part number in the search box (for example, LGB2118A-R2 or LGB2126A).
3. Click on the product in the “Products” page.
4. Click on the “Support” tab on the product page and select the document you wish to download.

# CHAPTER 1: SPECIFICATIONS

<b>GBE WEB SMART SWITCH – 18-PORT (LGB2118A-R2)</b>	
<b>APPROVALS</b>	FCC Part 15 Class A, CE, RoHS
<b>STANDARDS</b>	IEEE 802.3, IEEE 802.3u, IEEE 802.3ab, IEEE 802.3z, IEEE 802.3x, IEEE 802.1q
<b>HARDWARE PERFORMANCE</b>	
<b>DISTANCE</b>	Copper: 100 m (328 ft.) maximum; With optional SFP Optical Transceivers: LFP411: Multimode fiber: 550 m (1804.4 ft.) maximum; LFP413: Single-mode fiber: 10 km (6.2 mi.) maximum; LFP414: Single-mode fiber: 30 km (18.6 mi.) maximum
<b>MAC ADDRESSES</b>	8 K
<b>MECHANICAL</b>	
<b>CONNECTORS</b>	(16) RJ-45, (2) SFP ports
<b>INDICATORS</b>	LEDs: Per unit: (1) PWR, (1) CPU; Per port: (1) LINK/ACT, (1) 10/100/1000 Mbps; Also Ports 17–18: (1) SFP
<b>USER CONTROLS</b>	(1) Mode button
<b>POWER</b>	Voltage: 100–240 VAC; Frequency: 50–60 Hz, autosensing
<b>DIMENSIONS</b>	1.45" H (1U) x 8.57" W x 5.86" D (3.7 x 21.8 x 14.9 cm)
<b>WEIGHT</b>	4.63 lbs. (2.1 kg)
<b>ENVIRONMENTAL</b>	Operating Temperature: 32 to 104° F (0 to 40° C); Humidity: 10 to 90% noncondensing
<b>SOFTWARE FEATURES</b>	
<b>LAYER 2 SWITCHING</b>	Spanning Tree Protocol, Link Aggregation Control Protocol, VLAN, DHCP Relay, IGMP Snooping, IGMP Querier, IGMP Proxy, MLD v1/v2 Snooping, multicast VLAN
<b>MANAGEMENT</b>	Port mirroring, IEEE 802.1ab (LLDP) web GUI interface, dual image, UPnP, DHCP server, remote monitoring, SNMP, firmware upgrade, NTP, HTTP/HTTPS, DHCP client, cable diagnostics, Syslog, Telnet client, SSH, IPv6
<b>PORT MIRRORING</b>	Traffic on a port can be mirrored to another port for analysis with a network analyzer or RMON probe. Up to N-1 (N is Switch's Ports) ports can be mirrored to single destination port. A single session is supported
<b>QOS</b>	Hardware queue, scheduling, classification, rate limiting
<b>SECURITY</b>	Secure Shell (SSH) Secure Sockets Layer (SSL), IEEE 802.1X, Layer 2 Isolation Private VLAN Edge, port security, IP source guard, RADIUS/TACACS+, storm control, DHCP snooping, loop protection ACLs
<b>VLAN SUPPORT</b>	Supports up to 4K VLANs simultaneously (out of 4096 VLAN IDs), Port-based VLAN, 802.1Q tag-based VLAN, MAC-based VLAN, Management VLAN, Private VLAN Edge (PVE), Q-in-Q (double tag) VLAN, Voice VLAN, GARP VLAN Registration Protocol (GVRP)
<b>DEVICE MANAGEMENT SYSTEM</b>	Topology view, floor view, map view, dashboard



# CHAPTER 1: SPECIFICATIONS

<b>GBE WEB SMART SWITCH - (24) RJ-45, (2) SFP (LGB2126A)</b>	
<b>APPROVALS</b>	FCC Part 15 Class A, CE, RoHS
<b>HARDWARE PERFORMANCE</b>	
<b>FILTERING/FORWARDING RATE</b>	38.688 Mpps
<b>SWITCHING CAPACITY</b>	52 Gbps
<b>MAC TABLE</b>	8 K
<b>JUMBO FRAMES</b>	9216 bytes
<b>MECHANICAL</b>	
<b>CONNECTORS</b>	(24) 10/100/1000BASE-T RJ-45; (2) SFP; (1) DB9 console
<b>INDICATORS</b>	(1) System LED; (18) Port Status LEDs
<b>USER CONTROLS</b>	(1) Reset Pushbutton
<b>POWER</b>	Voltage: 100–240 VAC; Frequency: 50–60 Hz
<b>DIMENSIONS</b>	1.75 (1U)"H x 11"W x 6.5"D (4.4 x 28 x 16 cm)
<b>WEIGHT</b>	5.5 lb. (2.5 kg)
<b>ENVIRONMENTAL</b>	Operating Temperature: 32 to 104° F (0 to 40° C); Storage Temperature: -4 to +158° F (-20 to +70° C); Operating Humidity: 10 to 90% noncondensing
<b>SOFTWARE FEATURES</b>	
<b>LAYER 2 SWITCHING</b>	Spanning Tree Protocol, Link Aggregation Control Protocol, VLAN, DHCP Relay, IGMP Snooping, IGMP Querier, IGMP Proxy, MLD v1/v2 Snooping, multicast VLAN
<b>MANAGEMENT</b>	Port mirroring, IEEE 802.1ab (LLDP) web GUI interface, dual image, UPnP, DHCP server, remote monitoring, SNMP, firmware upgrade, NTP, HTTP/HTTPS, DHCP client, cable diagnostics, Syslog, Telnet client, SSH, IPv6
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<b>DEVICE MANAGEMENT SYSTEM</b>	Topology view, floor view, map view, dashboard

## CHAPTER 2: OVERVIEW

### 2.1 INTRODUCTION

This user guide describes how to install, configure, and troubleshoot the 18- or 26-Port GbE Web Smart Switch.

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

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

### 2.2 FRONT VIEW OF THE SWITCH

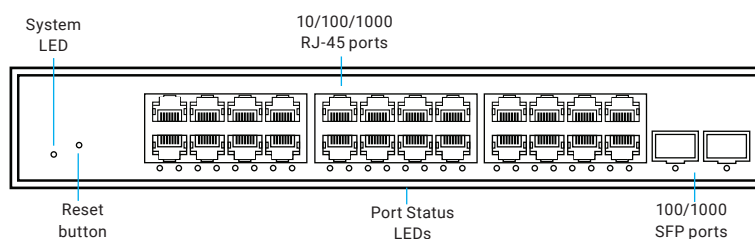


FIGURE 2-1. FRONT PANEL OF THE LGB2126A SWITCH

NOTE: The LGB2118A-R2 looks similar, but it has 16 10/100/1000 RJ-45 ports and 2 100/1000 SFP ports.

### 2.3 REAR VIEW OF THE SWITCH

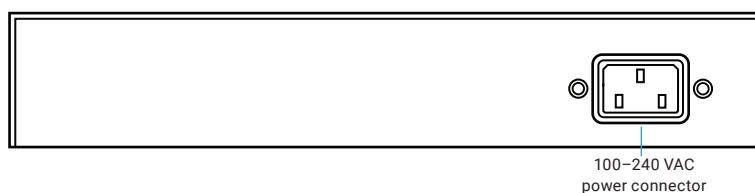


FIGURE 1-2. BACK PANEL OF THE LGB2118A-R2 OR LGB2126A SWITCH



## CHAPTER 2: OVERVIEW

### 2.4 LED DESCRIPTIONS

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

- ◆ System LED: indicates if the switch is powered up correctly or not.
- ◆ Port Status LEDs: indicate the current status of each port. Users can check these LEDs to understand the port status.

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

**TABLE 2-1. SYSTEM LED**

LED	COLOR	STATE	DESCRIPTION
System	Green	ON	The switch is powered on correctly
		OFF	The switch is not receiving power

**TABLE 2-2. PORT STATUS LEDS**

LED	COLOR	STATE	STATUS
RJ-45 ports	Green	ON	The port is enabled and established a link to 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 established a link to 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.
	—	OFF	The port has no active network cable connected, or it is not established a link to a connected device. Otherwise, the port may have been disabled through the switch user interface.
SFP ports	Green	ON	The port is enabled and established a link to 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 established a link to connected device, and the connection speed is 100 Mbps.
	Amber	Blinking	The port is transmitting/receiving packets, and the connection speed is 100 Mbps.
	—	OFF	The port has no active network cable connected, or it is not established a link to connected device. Otherwise, the port may have been disabled through the switch user interface.

## CHAPTER 2: OVERVIEW

### 2.5 RESET BUTTON

By pressing the Reset Button for certain period of time, users can perform the following tasks.

- ◆ Reset the Switch to reboot and get the switch back to the previous configuration settings saved.
- ◆ Restore the Switch to Factory Defaults to restore the original factory default settings back to the switch.

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

TABLE 2-3. RESET BUTTON

TASK	TIME TO PRESS THE BUTTON	SYS LED BEHAVIOR	PORT STATUS LED BEHAVIOR
Reset the Switch	2-7 seconds	Blinking Green	All LEDs light OFF
Restore to Defaults	7-12 seconds	Blinking Green	All LEDs stay ON



## CHAPTER 3: HARDWARE DESCRIPTION

### 3.1 WHAT'S INCLUDED

Your switch 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)

- ♦ LGB2118A-R2 or LGB2126A Switch
- ♦ (1) AC power cord
- ♦ (4) adhesive rubber feet
- ♦ Rackmount hardware (2 brackets, 6 screws)

NOTE: The switch is an indoor device. If it is to be used with outdoor devices such as outdoor IP cameras or outdoor WiFi APs, then we strongly recommend that you install a surge protector or surge suppressor to protect the switch.

### 3.2 MOUNTING THE SWITCH ON A WALL

STEP 1: Install screws (not included) on the appropriate location on the wall, and be aware of the dimensional limitation of the screws.

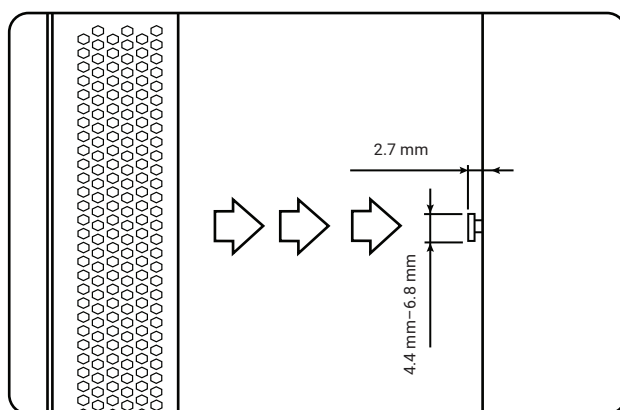


FIGURE 3-1. INSTALL SCREWS ON THE WALL

STEP 2: Attach the switch securely to the wall.

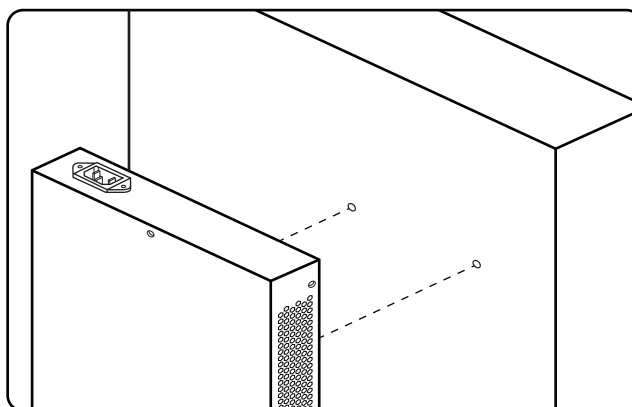


FIGURE 3-2. ATTACH THE SWITCH TO THE WALL

## CHAPTER 3: INSTALLING THE SWITCH

### 3.3 MOUNTING THE SWITCH ON A 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.

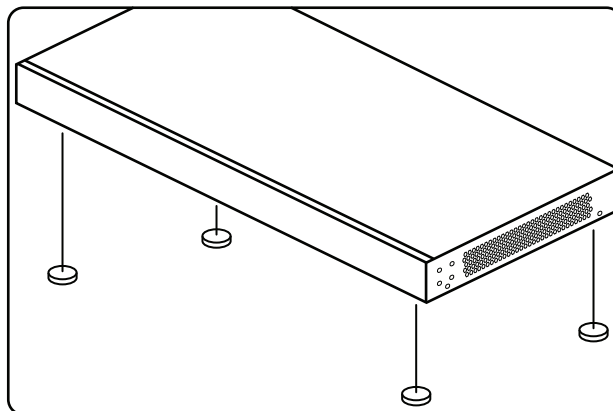


FIGURE 3-3. ATTACHING THE RUBBER FEET

### 3.4 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.

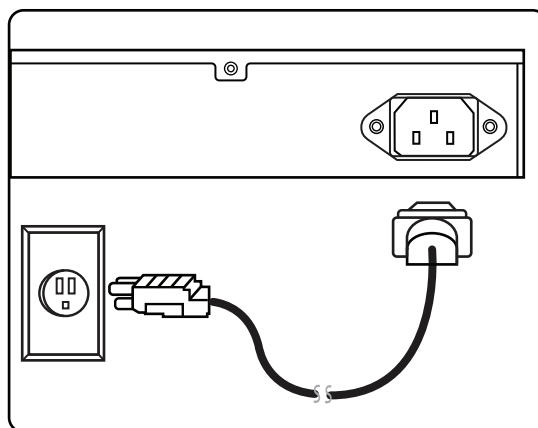


FIGURE 3-4. CONNECTING THE AC POWER CORD

## CHAPTER 3: INSTALLING THE SWITCH

### 3.5 INSTALLING SFP MODULES

You can install or remove an SFP module from a 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.

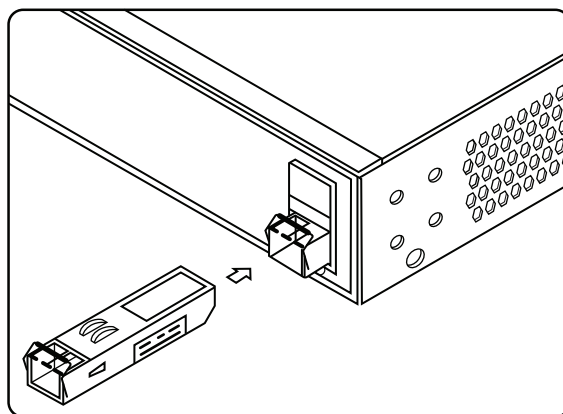


FIGURE 3-5. INSTALLING AN SFP MODULE INTO AN SFP PORT

NOTE: The SFP ports use UL Listed Optional Transceivers, Rated 3.3Vdc, Laser Class 1. A list of compatible SFP modules is in the table below.

The LGB2118A-R2 or LGB2126A switch supports the Small Form Factor Pluggable (SFP+) transceiver slots on ports 17–18 or 25–26.

The following table shows a list of Black Box transceiver types that have been tested with the switch.

TABLE 3-1. COMPATIBLE SFP/SFP+ MODULES

PRODUCT CODE	DESCRIPTION
LFP411	SFP, 1250-Mbps Fiber with Extended Diagnostics, 850-nm Multimode, 550 m LC
LFP412	SFP, 1250-Mbps Fiber with Extended Diagnostics, 1310-nm Multimode, 2 km LC
LFP413	SFP, 1250-Mbps Fiber with Extended Diagnostics, 1310-nm Single-Mode, 10 km LC
LFP414	SFP, 1250-Mbps Fiber with Extended Diagnostics, 1310-nm Single-Mode, 30 km LC
LFP415	SFP with SerDes Interface, 1250 Mbps, RJ45, 1000BASE-T, Extended Diagnostics
LFP416	SFP with SGMII Interface, 1250 Mbps, RJ45, 10/100/1000BASE-T, Extended Diagnostics
LFP418	SFP, 1250-Mbps Fiber with Extended Diagnostics, 1550-nm Single-Mode, 80 km, LC
LFP420	SFP, 1250-Mbps Simplex Fiber with Extended Diagnostics, 1550-nm TX, 1310-nm RX, Single-Mode, 10 km, LC
LFP421	SFP, 1250-Mbps Simplex Fiber with Extended Diagnostics, 1310-nm TX, 1550-nm RX, Single-Mode, 10 km, LC
LFP401	SFP, 155-Mbps Fiber with Extended Diagnostics, 850-nm Multimode, 2 km, LC
LFP402	SFP, 155-Mbps Fiber with Extended Diagnostics, 1310-nm Multimode, 2 km, LC
LFP403	SFP, 155-Mbps Fiber with Extended Diagnostics, 1310-nm Single-Mode, 30 km, LC
LFP404	SFP, 155-Mbps Fiber with Extended Diagnostics, 1310-nm Single-Mode, 60 km, LC

## CHAPTER 4: CONFIGURATION

### 4.1 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 so as to make sure the PC can communicate with the switch. After changing the PC's IP address (for example, 192.168.1.250), then you can access the Web interface of the switch using the switch's default IP address as shown below.

NOTE:

The factory default IP address of the switch is **192.168.1.1**

The factory default Subnet Mask of switch is **255.255.255.0**

### 4.2 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 below, 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 step 1 to 3, by pressing WinKey+R and type "ncpa.cpl" command to get to step 4 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: 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 in between 192.168.1.2 and 192.168.1.254), Subnet mask (e.g. 255.255.255.0), and Default gateway that corresponds with your network setup. Then enter your Preferred and Alternate DNS server addresses.

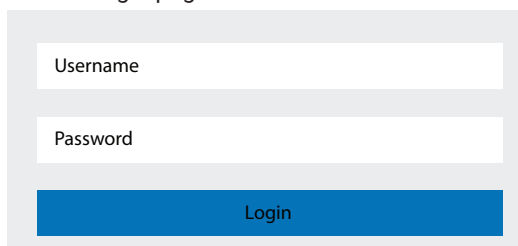
STEP 2G: Click OK to change the PC's IP address.

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 PC is OK.

STEP 5. Run your Web browser on the PC, 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 in the following figure.



The image shows a login form with three input fields. The first field is labeled 'Username', the second is labeled 'Password', and the third is a blue button labeled 'Login'. The form is set against a light gray background.

FIGURE 4-1. WEB INTERFACE LOGIN PAGE

## CHAPTER 4: CONFIGURATION

If you do not see the login page, please 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.

STEP 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 (just press the Enter key).

## CHAPTER 5: TROUBLESHOOTING

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

**TABLE 5-1. TROUBLESHOOTING**

<b>SYMPTOM</b>	<b>POSSIBLE CAUSE</b>	<b>SUGGESTED SOLUTIONS</b>
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. Perform power cycling 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 the power cord into different AC outlet socket to make sure the correct AC source is supplied.</li></ol>
Port Status LED is OFF	The port is not connected or the port 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 a 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 the web user interface.</li></ol>





## APPENDIX A: REGULATORY INFORMATION

### A.1 FCC STATEMENT

This equipment has been 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.

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

Shielded cables must be used with this equipment to maintain compliance with radio frequency energy emission regulations and ensure a suitably high level of immunity to electromagnetic disturbances.

All power supplies are certified to the relevant major international safety standards.

## 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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