D-Link®

Building Networks for People

DGS-1016D H1 / DGS-1024D H1

Version 5.20

Gigabit Desktop Switch

User Manual

Business Class Networking

Preface

D-Link reserves the right to revise this publication and to make changes in the content hereof without obligation to notify any person or organization of such revisions or changes.

Manual Revisions

Revision	Date	Description
2	June 11, 2015	• Initial release
5.20	September 25, 2017	• HW revision to Rev.H1

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Table of Contents

Package Contents

One D-Link DGS-1016D 16-Port or DGS-1024D 24-Port 10/100/1000BASE-T Gigabit Ethernet Switch

One AC power cord

Four rubber feet

Screws and two mounting brackets

Quick Install Guide

Power cord retainer

Tie wrap

If any of the above items are missing, please contact your reseller.

Introduction

Thank you and congratulations on the purchase of your new D-Link DGS-1016D/DGS-1024D Gigabit Ethernet Switch. D-Link's next generation DGS-1016D and DGS-1024D switches blend plug-and-play simplicity with exceptional value and reliability for small and medium-sized business (SMB) networking. All models are housed in a rack-mountable metal case with easy-to-view front panel diagnostic LEDs. This standalone switch is very easy to set up. No network management is required; simply power on the switch and connect the cables.

The 16-port DGS-1016D and 24-port DGS-1024D switches provide dedicated 10, 100 or 1000 Mbps Ethernet bandwidth on each port. The ports will automatically detect the speed, duplex, and MDI/MDIX status of the device it is connecting to and adjust these settings accordingly. The switch ports can be used to network computers, printers, servers, routers, other switches, or any device equipped with an Ethernet port. For best performance, use Category 5 or better Ethernet cabling. However, please keep in mind that standard Ethernet rules state cable lengths cannot exceed 100 meters (or 300 feet) from one device to another.

For more detailed information, please refer to the User's Manual or visit http://www.dlink.com

D-Link Green Technology

The brand-new DGS-1016D and DGS-1024D switches are green by design with IEEE 802.3az Energy Efficient Ethernet compliant (abbreviated as EEE) and D-Link Green Technologies. This allows significant power saving during periods of low data activity. In most environments, switches are idle 90% or more of the time. If there has been no network traffic over a short period of time, ports on DGS-1016D/DGS-1024D switch will change to power saving mode automatically. Upon receiving a packet, the switch wakes up the effected port or ports, returning to normal functionality immediately. By using EEE compliant devices, such as PCs and servers, the network can save energy without compromising any performance. Even when connecting to legacy devices which do not support IEEE 802.3az, D-Link Green Technologies can reduce power consumption by changing the power state of the link.

Power Saving Technology

This switch supports power saving by link status. If there is no link on a port, such as when there is no computer connected to the port or the connected computer is powered off, D-Link's Green Technology will enter a "sleep mode", drastically reducing power used for that port.

Features

The DGS-1016D and DGS-1024D switches are designed for easy installation, flexibility, and high performance. They do not require any management. Connect devices to the switch as the scale and volume of network traffic increases.

- 10/100/1000 Base-T on all ports

- Store and Forward Switching Method

- Cable Diagnostics at boot

- D-Link Green Technology

- Auto MDI/MDIX

- Auto Negotiation of Duplex Mode

- Full/Half Duplex Transfer Mode on 10/100 Mbps

- Full Duplex Transfer Mode on 1000 Mbps

- Wire-Speed reception and transmission

- 8K absolute MAC Address

- 512 KB RAM for data buffering

- Easy to read diagnostic LEDs

- IEEE 802.3x Flow Control for Full-duplex mode

- Back Pressure Flow Control for Half-duplex mode

- IEEE 802.1p QoS (support 4 Queues, Strict Mode)

- Jumbo Frame support (10K Bytes)

- IEEE802.3az EEE

Hardware Overview
Front Panel
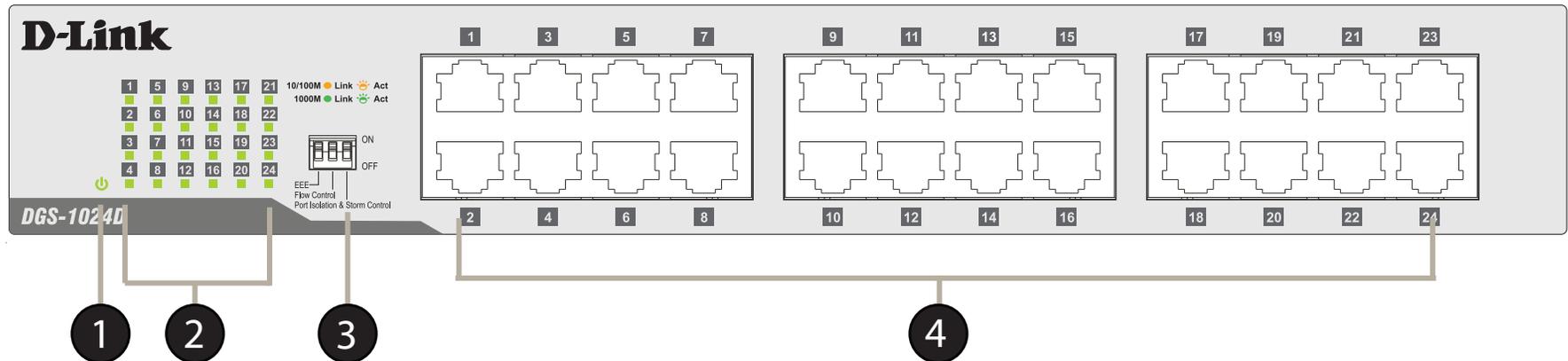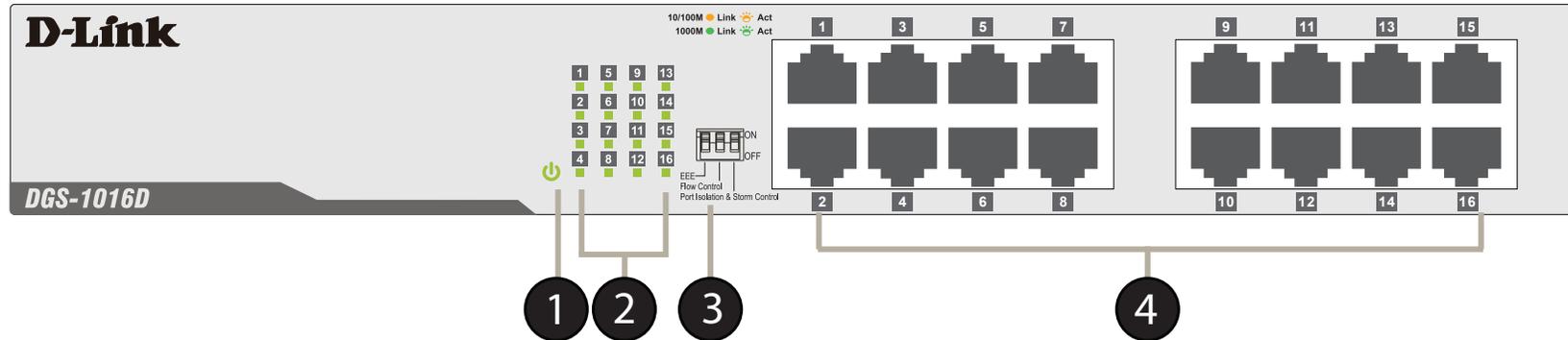
1	Power
2	Link/Act/Speed LED
3	DIP Switches
4	RJ 45 Ethernet Ports

LED Indicators

The LED Indicators allow you to monitor, diagnose, and troubleshoot any potential problem with the switch, connection, or attached devices.
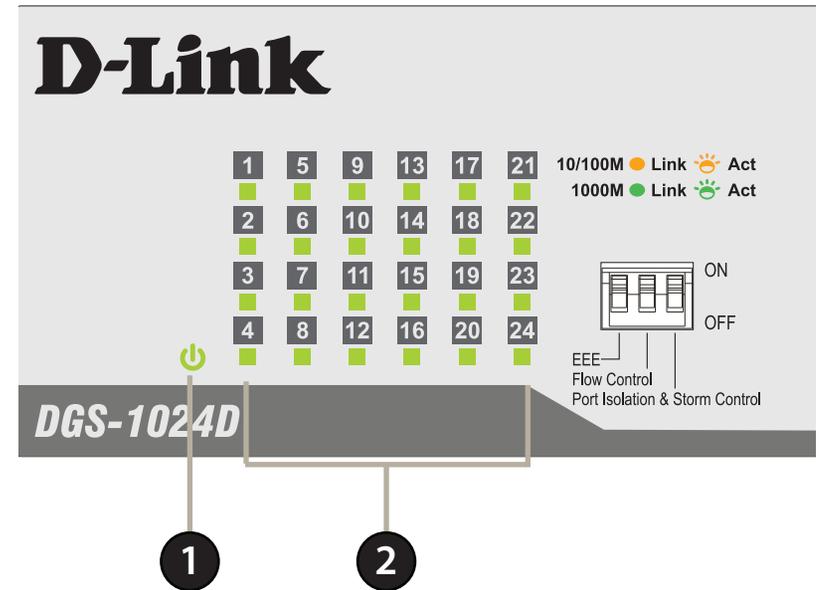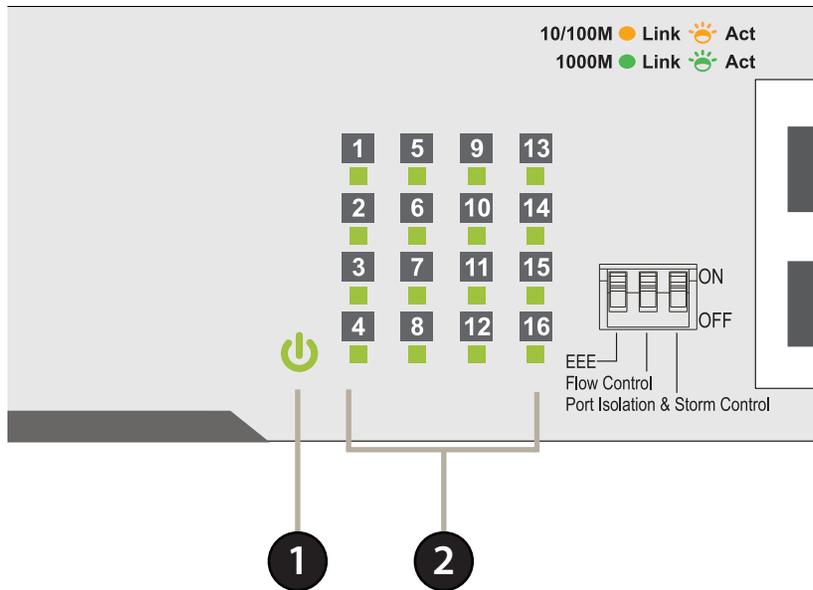
	LED	Color	State	Indication
1	Power	Green	Light on	Power on
			Light off	Power off
2	Link/Act/Speed	Green	On	Connection (or link) at 1000 Mbps
			Blinking	Reception or Transmission at 1000 Mbps
		Amber	On	Connection (or link) at 10/100 Mbps
			Blinking	Reception or Transmission at 10/100 Mbps

Rear Panel

#	Name	Function Description
1	**Kensington Security Slot**	The D-Link DGS-1016D/24D may be physically secured via a Kensington Security Lock to help deter theft.
2	**Switch Ground**	A ground screw hole is provided for grounding the switch. Grounding is optional, but recommended as it provides an additional layer of protection in the event of an electrical fault. Please refer to **Hardware Installation – Grounding the Switch** for more information.
3	**Power Input**	The switch is equipped with an internal universal power supply. The switch's power supply will adjust to the local power source automatically and may be turned on without having any or all LAN segment cables connected. The AC power connector is a standard three-pronged connector which connects to the power cord. Please refer to **Safety Instructions – Electrical Power Guidelines** for more information.
4	**Power Cord Retainer**	Prevents accidental removal of the AC power cord. Please refer to **Hardware Installation – Installing the Power Cord Retainer** for more information.

Safety Instructions

Follow these guidelines to ensure personal safety and to help protect the system from potential damage. Throughout this safety section, the caution icon is used to indicate cautions and precautions that need to be reviewed and followed.

Safety Precautions

To reduce the risk of bodily injury, electrical shock, fire, and damage to the equipment, observe the following precautions:

* As with any electronic device, you should place the equipment where it will not be subjected to extreme temperatures, humidity, or electromagnetic interference.

* Keep the switch away from radiators and heat sources.

* Do not block cooling vents.

* Leave at least 10 cm (4 inches) of space around the switch for adequate ventilation

* Do not place heavy objects on the switch.

* Do not place any device on top of or next to the switch, or place the switch on top of any device or object that will block the free flow of air through the ventilation slots or that will generate a significant amount of heat.

* Keep hands away from top and bottom of device since it generates a significant amount of heat.

* Do not spill food or liquids on the switch, and never operate the product in a wet environment.

* Do not push any objects into the openings of the device. Doing so can cause a fire or an electric shock by shorting out interior components.

- Use the product only with approved equipment.

Observe and follow service markings. Do not service any product except as explained in the system documentation. Opening or removing covers that are marked with a triangular symbol with a lightning bolt may expose you to an electrical shock. Only a trained service technician should service components inside these compartments.

If any of the following conditions occur, unplug the product from the electrical outlet and replace the part or contact a trained service provider:

- The power cable, extension cable, or plug is damaged.

- An object has fallen onto the product.

- The product has been exposed to water.

- The product has been dropped or damaged.

- The product does not operate correctly when following the operating instructions.

Electrical Power Guidelines

- Operate the product only from the type of external power source indicated on the electrical ratings label. If unsure of the type of power source required, consult a service provider or local power company.

- The purpose of this product is to create a constant network connection for your devices. As such, it does not have a standby mode or use a power management mode. If you wish to power down this product, please simply unplug it from the power outlet.

To help avoid damaging the system, be sure the voltage selection switch (if provided) on the power supply is set to match the local power available. Also be sure that attached devices are electrically rated to operate with the local power available.

- 115 volts (V)/60 hertz (Hz) in most of North and South America and some Asian countries such as South Korea and Taiwan

- 100 V/50 Hz in eastern Japan and 100 V/60 Hz in western Japan.

- 230 V/50 Hz in most of Europe, the Middle East, and the Far East.

- Use only approved power cable(s).

- If a suitable power cable has not been provided for the system or any AC-powered option intended for the system, purchase a power cable that is approved for use in the country of use. The power cable must be rated for the product and for the voltage and current marked on the product's electrical ratings label. The voltage and current rating of the cable should be greater than the ratings marked on the product.

- To help prevent an electric shock, plug the system and peripheral power cables into properly grounded electrical outlets. These cables are equipped with three-prong plugs to help ensure proper grounding. Do not use adapter plugs or remove the grounding prong from a cable. If an extension cable must be used, use a 3-wire cable with properly grounded plugs.

- Observe extension cable and power strip ratings. Make sure that the total ampere rating of all products plugged into the extension cable or power strip does not exceed 80 percent of the ampere ratings limit for the extension cable or power strip.

- To help protect the system from sudden, transient increases and decreases in electrical power, use a surge suppressor, line conditioner, or uninterruptible power supply (UPS).

- Position system cables and power cables carefully; route cables so that they cannot be stepped on or tripped over. Be sure that nothing rests on any cables.

- Do not modify power cables or plugs. Consult a licensed electrician or local power company for site modifications. Always follow local/national wiring rules.

- When connecting or disconnecting power to hot-pluggable power supplies, if offered with the system, observe the following guidelines:

    - Install the power supply before connecting the power cable to the power supply.

    - Unplug the power cable before removing the power supply.

    - If the system has multiple sources of power, disconnect power from the system by unplugging all power cables from the power supplies.

    - Move products with care; ensure that all casters and/or stabilizers are firmly connected to the system. Avoid sudden stops and uneven surfaces.

Protecting Against Electrostatic Discharge

Static electricity can harm delicate components inside the system. To prevent static damage, discharge static electricity from your body before touching any of the electronic components, such as the microprocessor. This can be done by periodically touching an unpainted metal surface on the chassis.

The following steps can help to prevent damage from electrostatic discharge (ESD):

1. When unpacking a static-sensitive component from its shipping carton, do not remove the component from the antistatic packing material until ready to install the component in the system. Just before unwrapping the antistatic packaging, be sure to discharge static electricity from your body.

2. When transporting a sensitive component, first place it in an antistatic container or packaging.

3. Handle all sensitive components in a static-safe area. If possible, use antistatic floor pads, workbench pads, and an antistatic grounding strap.

Hardware Installation

This chapter provides unpacking and installation information for the D-Link DGS-1016D/DGS-1024D Gigabit Ethernet Switch.

Step 1 - Before Connecting to the Network

The site where the switch is installed may greatly affect its performance. For the switch to perform safely at its optimal level, please select a site which meets the following requirements:

1. Install the DGS-1016D / DGS-1024D in a fairly cool and dry place. See Technical Specifications page in the manual for the acceptable operation temperature and humidity ranges.

2. Install the switch in a site free from strong electromagnetic field generators (such as motors), vibration, dust, and direct exposure to sunlight.

3. Leave at least 10cm of space around the switch for ventilation.

4. Place the switch within 1.82 meters (6 feet) of a power outlet.

Step 2 - Switch Installation

Desktop or Shelf Installation

Select an install site for the switch which is level and can support at least 3 kg (6.6 lbs) of weight.

• Do not place heavy objects on the switch.

• Use the rubber feet provided to cushion the switch, protect the casing from scratches and prevent it from scratching other surfaces.

Attaching the Rubber Feet

Position and apply the rubber feet to the bottom corners of the DGS-1016D/1024D switch.
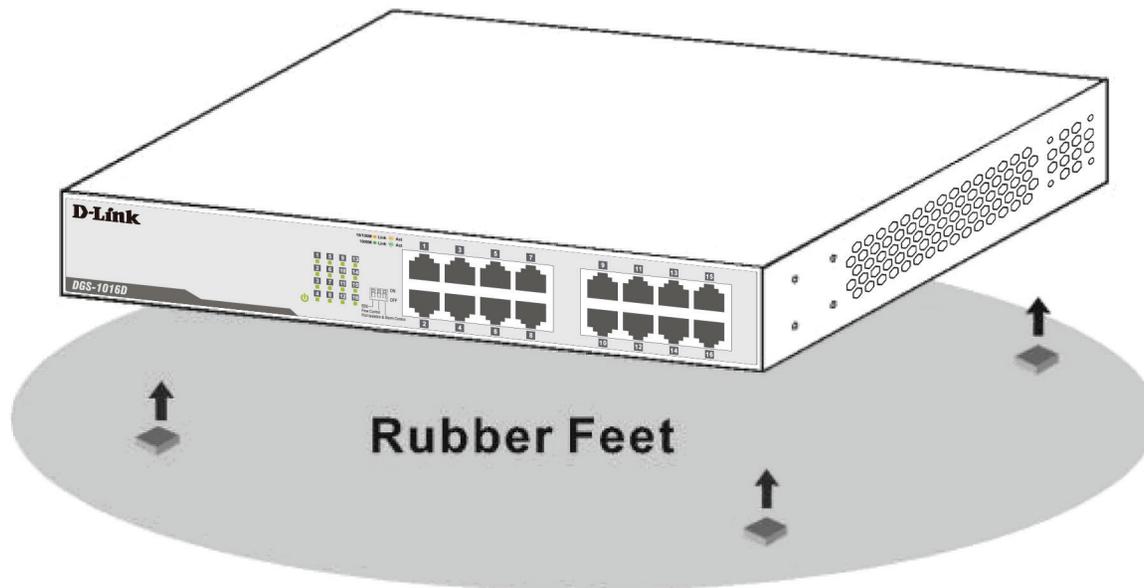
**Attach the adhesive rubber pads to the bottom**

Rack Installation

The DGS-1016D/1024D can easily be mounted in an EIA standard size 19-inch rack which can be placed in a wiring closet with other equipment. If opting for a rack installation, make sure that the front panel is exposed in order to view the LEDs.

To install, attach the mounting brackets provided for this purpose to the switch's side panels (one on each side) and secure them with the screws provided. Please note that these brackets are not designed for palm size switches.
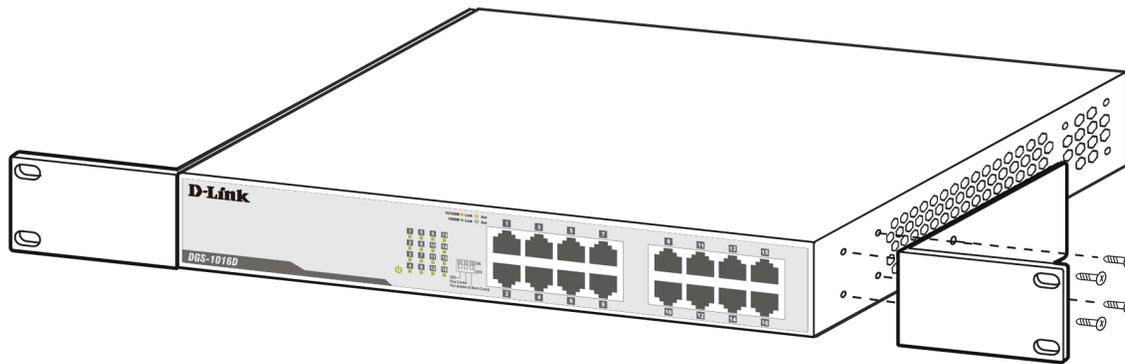
Attach the mounting brackets to the switch
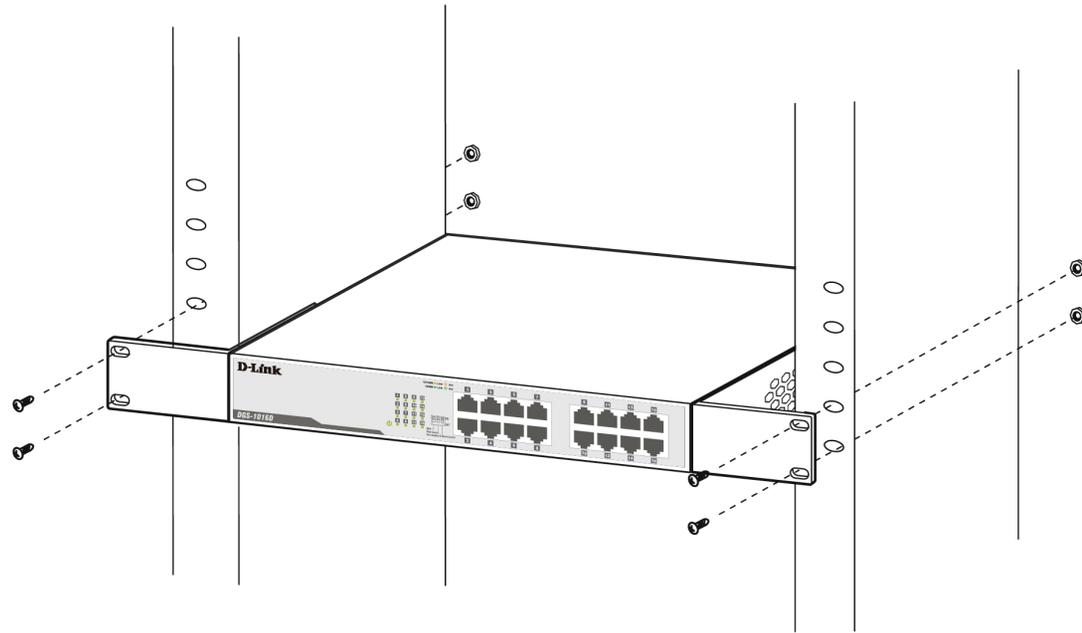
Mount the switch in the rack or chassis using the screws provided with the equipment rack.

General Precautions for Rack-Mountable Products

Observe the following precautions for rack stability and safety. Also refer to the rack installation documentation accompanying the system and the rack for specific caution statements and procedures. Systems are considered to be components in a rack. Thus, "component" refers to any system as well as to various peripherals or supporting hardware.

CAUTION: Installing systems in a rack without the front and side stabilizers installed could cause the rack to tip over, potentially resulting in bodily injury under certain circumstances. Therefore, always install the stabilizers before installing components in the rack.

• After installing system/components in a rack, never pull more than one component out of the rack on its slide assemblies at a time. The weight of more than one extended component could cause the rack to tip over and may result in serious injury.

• Before working on the rack, make sure that the stabilizers are secured, extended to the floor, and that the full weight of the rack rests on the floor. Install front and side stabilizers on a single rack or front stabilizers for joined multiple racks before working on the rack.

• Always load the rack from the bottom up, and load the heaviest item in the rack first.

• Make sure that the rack is level and stable before extending a component from the rack.

• Use caution when pressing the component rail release latches and sliding a component into or out of a rack; the slide rails can pinch fingers.

• After a component is inserted into the rack, carefully extend the rail into a locking position, and then slide the component into the rack.

• Do not overload the AC supply branch circuit that provides power to the rack. The total rack load should not exceed 80 percent of the branch circuit rating.

- Ensure that proper airflow is provided to components in the rack.

- Do not step on or stand on any component when servicing other components in a rack.

⚠ CAUTION: Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if uncertain that suitable grounding is available.

⚠ CAUTION: The system chassis must be positively grounded to the rack cabinet frame. Do not attempt to connect power to the system until grounding cables are connected. Completed power and safety ground wiring must be inspected by a qualified electrical inspector. An energy hazard will exist if the safety ground cable is omitted or disconnected.

Please be aware of following safety instructions when installing rack-mountable products:

A. Elevated Operating Ambient Temperature - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room temperature. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.

B. Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

C. Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

D. Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

E. Reliable Grounding - Reliable grounding of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

Step 3 – Installing the Power Cord Retainer

Installation of the power cord retainer is recommended to prevent accidental removal of the AC power cord.

A. Insert a tie wrap with the rough side facing down into the hole below the power socket.
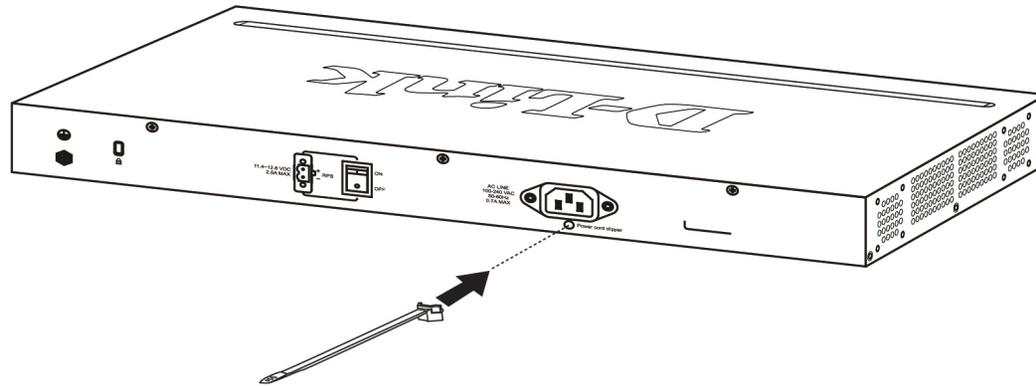
Insert tie wrap

B. Connect the AC power cord into the AC power inlet of the switch.
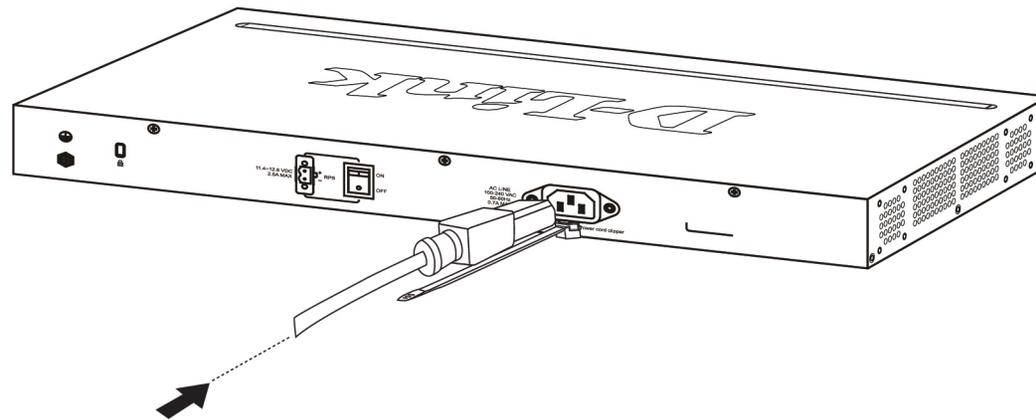
Connect the power cord to the switch

C. Attach the retainer to the tie wrap and slide it up to the end of the cord.
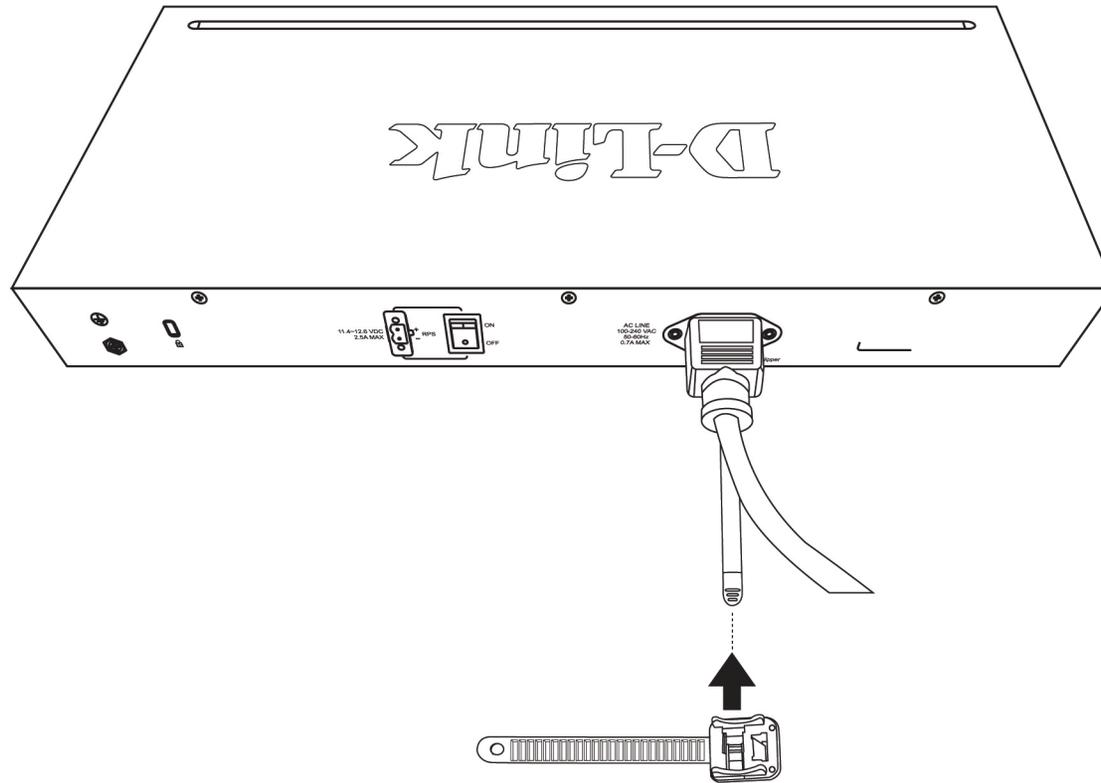
Attach the retainer to the tie wrap

D. Wrap the retainer around the power cord and insert the free end into the fastener.
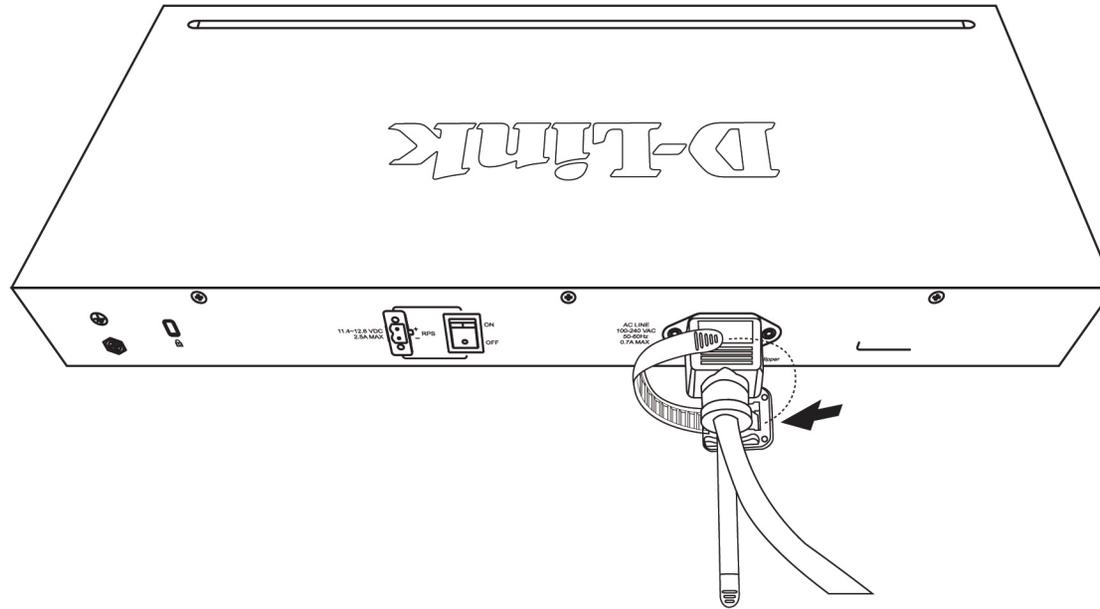
Wrap the retainer around the power cord

E. Fasten the retainer by pulling on it until secure.
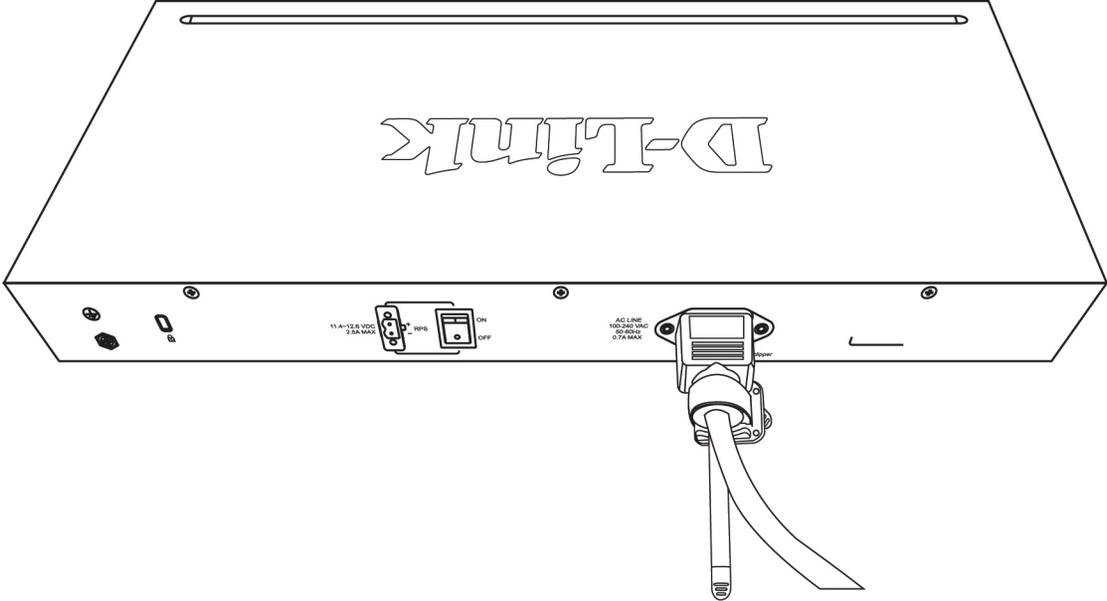
Secure the power cord

Step 4 – Grounding the Switch

This section describes how to connect the DGS-1016D/DGS-1024D Switch to ground. Completion of this step is strongly advised for added protection from over voltage and over current from lightning strikes.

Required Tools and Equipment

- Ground screws (included in the accessory kit): One M4 x 6 mm (metric) pan-head screw
- Ground cable (not included in the accessory kit): The grounding cable should be sized according to local and national installation requirements. Depending on the power supply and system, a 12 to 6 AWG copper conductor is required for U.S installation. Commercially available 6 AWG wire is recommended. The length of the cable depends on the proximity of the switch to proper grounding facilities. A #8 terminal lug ring should be fastened to the grounding wire.
- A screwdriver (not included in the accessory kit)

Use the following steps to connect the switch to a protective ground:

1. Verify system is powered off.

2. Use the ground cable to place the #8 terminal lug ring on top of the ground-screw opening, as seen in the illustration below.

3. Insert the ground screw into the ground-screw opening.

4. Using a screwdriver, tighten the ground screw to secure the ground cable to the switch.

5. Attach the terminal lug ring at the other end of the grounding cable to an appropriate grounding stud or bolt on rack where the switch is installed.

6. Verify that the connections to the ground connector on the switch and to the rack are securely attached.
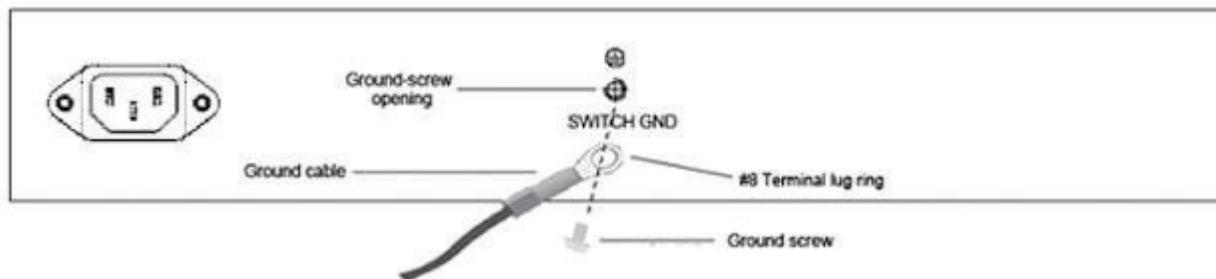
Ground cable, screw and #8 terminal lug rings

Step 5 – Plugging in the AC Power Cord

To power on the switch, plug in device end of the provided AC power cord into the AC inlet on the back of the switch, and the male end of the cord into a suitable power source (preferably one that is grounded and surge protected). The switch's power supply will adjust to the local power source automatically and may be turned on without having any or all LAN segment cables connected.
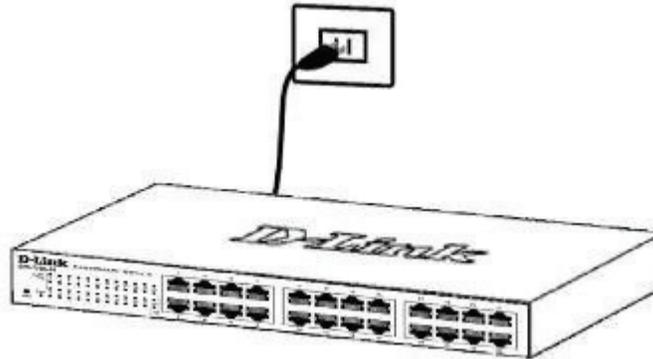
After the switch is powered on, the LED indicators will blink briefly while the system resets.

Power Failure

As a precaution, unplug the switch in the event of a power failure. Plug the switch back in when power is resumed.

Cable Diagnostics

The Cable Diagnostics function helps network administrators to diagnose network connectivity issues. This function is initialized when the switch is first powered on. Each port is scanned to determine if the Ethernet cable and connectors are in good working order. This diagnostic test looks for two types of common faults in Ethernet cable: an open circuit or a short circuit. An open circuit is usually caused by a lack of continuity between the pins at each end of the Ethernet cable or a disconnected cable, while a short circuit occurs when two or more conductors have an unintended connection. Either of these common cable faults will be detected by the Cable Diagnostics function.

During the diagnostics the LED for each port blinks green in sequential order. If a cable fault is detected, the corresponding port's Link/Act/Speed LED will light amber. Once the cable diagnostic function has completed, the switch then proceeds with normal operation.

NOTE: the Cable Diagnostics function does not detect the length of Ethernet cabling. Remember that the length of cabling between two Ethernet devices may not exceed 100 meters (or 300 feet).

Link/Act/Speed LED Color	Status
Green	No Fault/Good Cable Connection
Amber	Open or Short Circuit

DIP Switches

The DIP Switches on the front panel allow easy configuration of the advanced features of the DGS-1016D and DGS-1024D.
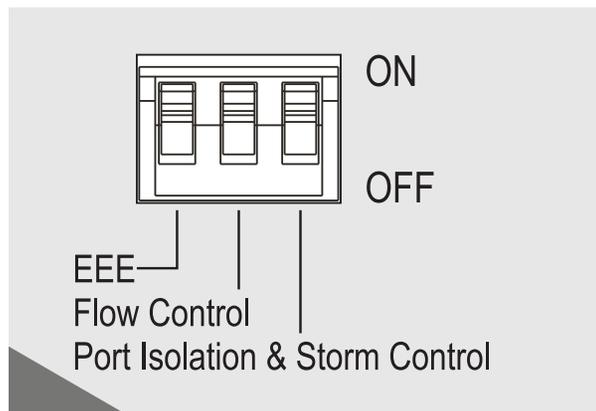
DIP Switch	Function Description	Default
EEE	Enable/Disable Energy-Efficient Ethernet (EEE) Feature	Off
Flow Control	Enable/Disable Flow Control Feature	On
Port Isolation and Storm Control	When enabled a broadcast storm control threshold value of 128kbps will be applied to incoming broadcast packets on all ports. **Port Isolation:** **DGS-1016D** - When enabled, ports 1 to 15 will be isolated from each other, but will still be able to communicate with port 16. Port 16 will be able to communicate with all the ports available on this switch. **DGS-1024D** - When enabled, ports 1 to 23 will be isolated from each other, but will still be able to communicate with port 24. Port 24 will be able to communicate with all the ports available on this switch.	Off

Note: The switch must be power cycled after changing DIP Switch settings for new settings to take effect.

EEE

IEEE 802.3az Energy-Efficient Ethernet (EEE) is the first standard in the history of Ethernet to address proactive reduction in energy consumption for networked devices. The IEEE 802.3 EEE standard defines mechanisms and protocols intended to reduce the energy consumption of network links during periods of low utilization, by transitioning interfaces into a low-power state without interrupting the network connection.

Flow Control

As the demand on network resources grow, due to higher and higher amounts of data being generated from applications and users, individual network links may be pushed to their limit. This is especially the case where multiple network links aggregate to generate many times more data than any single link can handle. In this scenario, switch packet buffer memory will quickly be depleted and overall network performance will decrease due to continued data retransmission of dropped packets. In the event that a bottleneck exists, such as multiple users trying to transfer data to a network server at the same time, enabling the flow control feature of this switch may help to alleviate network congestion at the expense of total network throughput.

The flow control feature of this switch works by sending Ethernet "PAUSE" frames defined by the IEEE 802.x standard to multicast address 01-80-C2-00-00-01. Upon reception of this frame, the sender will hault transmission for a specificied period of time. An assessment of currently employed networking technologies should be made before enabling flow control.

Note: **The switch must be power cycled after changing DIP switch settings for new settings to take effect.**

Port Isolation

Port Isolation, also known as Private VLAN, is a feature of this switch which restricts switch ports to communicating with only a single uplink port. When enabled, all private port traffic will be forwarded to the uplink port, regardless of VLAN ID or destination MAC address and prevented from communicating with all other ports. However, the uplink port will still be able to communicate with all switch ports. This may desired for network environments where Internet connections shared between different apartments or hotel rooms where network segmentation for privacy and security is desired.

Storm Control

A broadcast storm occurs when a message is exponentially retransmitted creating excessive broadcast traffic which consume network resources as to render it unable to transport normal traffic. When this switch's broadcast storm control feature is enabled, incoming broadcast frames are monitored and prevented from being forwarded if exceeding a 128 kbps value. While this does not resolve broadcast radiation problems, it will help a network administrator to diagnose and resolve the root cause of the broadcast storm.

Note: **The switch must be power cycled after changing DIP switch settings for new settings to take effect.**

Technical Specifications

		DGS-1016D	DGS-1024D
General	Number of Ports	▪ 16 10/100/1000 Gigabit ports	▪ 24 10/100/1000 Gigabit ports
	Standards	▪ IEEE 802.3 10BASE-T ▪ IEEE 802.3u ▪ IEEE 802.3ab ▪ IEEE 802.1p QoS ▪ IEEE 802.3x Flow Control supported for Full Duplex, Auto-Negotiation ▪ IEEE 802.3az Energy Efficiency Ethernet	
	Data Transfer Rate	▪ Ethernet: 10 Mbps/20 Mbps (Half-duplex/Full-duplex) ▪ Fast Ethernet: 100 Mbps/200 Mbps (Half-duplex/Full-duplex) ▪ Gigabit Ethernet: 2000 Mbps (Full-duplex)	
	Network Cables	▪ Ethernet: 2-pair UTP Cat.3/4/5/5e, Unshield Twisted Pair (UTP)Cable ▪ Fast Ethernet: 2-pair UTP Cat.5/5e, Unshield Twisted Pair (UTP)Cable ▪ Gigabit Ethernet: 4-pair UTP Cat.5/ 5e, Unshield Twisted Pair (UTP)Cable	
Functionality	D-Link Green Technologies	▪ Power saving by link status	
	Security	▪ Storm Control	
	QoS (Quality of Service)	▪ 802.1p priority, ▪ 4 queues	
	VLAN	▪ Port Based VLAN	
	L2 Features	▪ Cable Diagnostics	
Switching Features	Protocol	▪ CSMA/CD	
	Packet Buffer RAM	▪ 512 KBytes per device/Kbits per device	
	Filtering Address Table	▪ 8K MAC address per device	
	Packet Filtering/Forwarding Rate	▪ Full wire speed	
	MAC Address Learning	▪ Self-learning, auto-aging	
	Forwarding Mode	▪ Store-and-forward	
	Topology	▪ Star	

		DGS-1016D	DGS-1024D
Performance	Switching Capacity	▪ 32 Gbps	▪ 48 Gbps
	Max. Forwarding Rate	▪ 23.8 Mpps	▪ 35.71 Mpps
	Port Packet Filtering	▪ 10M: 14,880 pps ▪ 100M: 148,800 pps ▪ 1000M: 1,488,000 pps	
Physical	LEDs	▪ Power LED	
		▪ 16 Link/Activity/Speed LEDs (one per port)	▪ 24 Link/Activity/Speed LEDs (one per port)
	DIP Switches	▪ Energy-Efficient Ethernet (EEE) ▪ Flow Control ▪ Port Isolation and Storm Control	
	AC Input	▪ Internal universal power supply	
	Power Consumption (Maximum)	▪ 10.07 watts	▪ 13.3 watts
	Power Consumption (Standby)	▪ 3.02 watts	▪ 4.4 watts
	Heat Dissipation (Maximum)	▪ 34.3 BTU/hr	▪ 45.35 BTU/hr
	MTBF	▪ 1,882,372 Hours	▪ 863,100 hours
	Acoustic Value	▪ 0dB(A) Fanless	
	Temperature (Operating)	▪ 0 ºC ~ 40 ºC (32ºF ~ 104ºF)	
	Temperature (Storage)	▪ -10ºC ~ 70ºC (14ºF ~ 158ºF)	
	Humidity (Operating)	▪ 5% ~ 90% RH, non-condensing	
	Humidity (Storage)	▪ 5% ~ 95% RH	
	Dimensions	▪ 280 x 125 x 44 mm (11.02 x 4.92 x 1.73 inches)	▪ 280 x 180 x 44 mm (11.02 x 7.09 x 1.73 inches)
	Weight	▪ 1.023 kg (2.26 pounds)	▪ 1.3 kg (2.87 pounds)

Certifications	Emission Certifications (EMI)	▪ FCC Class A ▪ ICES-003 Class A ▪ CE Class A ▪ VCCI Class A ▪ C-Tick Class A ▪ CCC ▪ BSMI ▪ KCC
	Safety	▪ cUL/UL ▪ CB ▪ CCC ▪ BSMI ▪ CE(LVD)

Regulatory Information

Caution: Do not remove the plug and connect it to a power outlet by itself; always attach the plug to the power adaptor first before connecting it to a power outlet.

Federal Communication Commission Interference Statement:
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.

Non-modifications Statement:
Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment

Caution:
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 statement:
This Class A digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada."

" この装置は、クラス A 情報技術装置です。 この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。 この場合には使用者が適切な対策を講ずるよう要求されることがあります。　　　　　　VCCI-A

Japan Voluntary Control Council for Interference Statement

　This is a Class A product based on the standard of the Voluntary Control Council for Interference (VCCI). If this equipment is used in a domestic environment, radio interference may occur, in which case the user may be required to take corrective actions."

Korea
"이 기기는 업무용(A급) 전자파적합기기로서 판 매자 또는 사용자는 이 점을 주의하시기 바라 며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.

This equipment is Industrial (Class A) electromagnetic wave suitability equipment and seller or user should take notice of it, and this equipment is to be used in the places except for home. "

"警告使用者:

此為甲的資訊技術設備，在居住環境中使用時，可能會造成射頻擾動，在這種情況下，使用者會被要求採取某些適當的對策。"

CE EMI Class A Warning:
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.