

Lenovo CE0128TB/CE0128PB/CE0152TB/CE0152PB
Campus-series Ethernet Switch

Installation Guide

Lenovo[™]

Important Product Information:

Before using this information and the product it supports, read [Appendix B, “Notices”](#) of this manual. Also read the product *Warranty Information* document and the *Important Notices* document included with the product.

First Edition (March 2019)

© Copyright Lenovo 2019

LIMITED AND RESTRICTED RIGHTS NOTICE: If data or software is delivered pursuant a General Services Administration “GSA” contract, use, reproduction, or disclosure is subject to restrictions set forth in Contract No. GS-35F-05925.

Lenovo and the Lenovo logo are trademarks of Lenovo in the United States, other countries, or both.

Contents

Contents	3
Safety Information	5
Safety Warnings and Compliances	7
FCC Warning	7
CE Mark Warning	7
BSMI Notice	7
Safety Compliance	8
SFP and SFP+ Regulatory Compliance	8
Safety notices	9
Safety Instructions	10
Safety Precautions	10
Electrical Safety Precautions	10
Rack-mount Safety Precautions	11
Introduction	13
Package Contents	13
Switch Components	15
Front Panel Components	15
LED Indicators	16
Back Panel Components	18
Side Panel Components	19
Hardware Installation	21
Installation into a Rack	22
Installing Transceivers into the Transceiver Ports	24
Technical Specifications	25
Physical Characteristics	25
Environmental Specifications	26
Cooling Specifications	26
Power Specifications	27
Power-over-Ethernet Specifications	28
Port Specifications	29
Getting Help and Technical Assistance	31
Notices	33
Trademarks	35
Important Notes	36
Open Source Information	37
Recycling Information	38
Particulate Contamination	39
Telecommunication Regulatory Statement	40

Electronic Emission Notices	41
Federal Communications Commission (FCC) Statement	41
Industry Canada Class A Emission Compliance Statement	41
Avis de Conformité à la Réglementation d'Industrie Canada	41
Australia and New Zealand Class A Statement	41
European Union - Compliance to the Electromagnetic Compatibility Directive	42
Germany Class A Statement	42
Japan VCCI Class A Statement	43
Japan Electronics and Information Technology Industries Association (JEITA) Statement	44
Korea Communications Commission (KCC) Statement	44
Russia Electromagnetic Interference (EMI) Class A statement	44
People's Republic of China Class A electronic emission statement	44
Taiwan Class A compliance statement	44
Taiwan BSMI RoHS declaration	45

Safety Information

Before installing this product, read the Safety Information.

قبل تركيب هذا المنتج، يجب قراءة الملاحظات الأمنية

Antes de instalar este produto, leia as Informações de Segurança.

在安装本产品之前，请仔细阅读 **Safety Information** (安全信息)。

安裝本產品之前，請先閱讀「安全資訊」。

Prije instalacije ovog produkta obavezno pročitajte Surgonosne Upute.

Před instalací tohoto produktu si přečtěte příručku bezpečnostních instrukcí.

Læs sikkerhedsforskrifterne, før du installerer dette produkt.

Lees voordat u dit product installeert eerst de veiligheidsvoorschriften.

Ennen kuin asennat tämän tuotteen, lue turvaohjeet kohdasta Safety Information.

Avant d'installer ce produit, lisez les consignes de sécurité.

Vor der Installation dieses Produkts die Sicherheitshinweise lesen.'

Πριν εγκαταστήσετε το προϊόν αυτό, διαβάστε τις Πληροφορίες ασφαλείας (safety information).

לפני שתתקינו מוצר זה, קראו את הוראות הבטיחות.

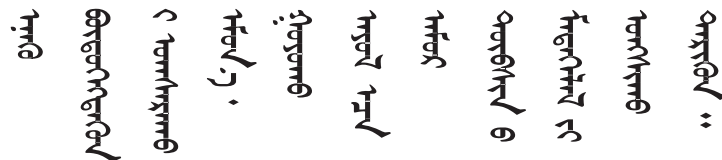
A termék telepítés előtt olvassa el a Biztonsági előírásokat!

Prima di installare questo prodotto, leggere le Informazioni sulla Sicurezza.

製品の設置の前に、安全情報をお読みください。

본 제품을 설치하기 전에 안전 정보를 읽으십시오.

Пред да инсталира овој продукт, прочитајте информацијата за безбедност.



Les sikkerhetsinformasjonen (Safety Information) før du installerer dette produktet.

Przed zainstalowaniem tego produktu, należy zapoznać się z książką "Informacje dotyczące bezpieczeństwa" (Safety Information).

Antes de instalar este produto, leia as Informações sobre Segurança.

Перед установкой продукта прочтите инструкции по технике безопасности.

Pred inštaláciou tohto zariadenia si prečítajte Bezpečnostné predpisy.

Pred namestitvijo tega proizvoda preberite Varnostne informacije.

Antes de instalar este producto, lea la información de seguridad.

Läs säkerhetsinformationen innan du installerar den här produkten.

ཐོན་རྒྱུ་འདི་བདེ་སྤྱོད་མ་བྱས་གོང་། སློབ་གྲི་ཡིད་གཟབ་
བྱ་འདྲ་མིན་ཡོད་པའི་འོད་སྤེལ་བལྟ་དགོས།

Bu ürünü kurmadan önce güvenlik bilgilerini okuyun.

مەزكۇر مەھسۇلاتنى ئورنىتىشتىن بۇرۇن بىخەتەرلىك ئۇچۇرلىرىنى ئوقۇپ چىقىڭ.

Youq mwngz yungh canjbinj neix gaxgonq, itdingh aeu doeg aen canjbinj soengq cungj vahgangj ancien suisik.

Safety Warnings and Compliances

FCC Warning

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 uses, generates, and can radiate radio frequency energy and if not installed in accordance with the Installation Guide, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause interference. In this case, the user is required to correct the interference at their own expense.



Warning

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

CE Mark Warning



Class A product

In a domestic environment, this product may cause radio interference. In this case, the user may be required to take adequate measures.

BSMI Notice

警告使用者：此為甲類資訊技術設備，於居住的環境中使用時，可能會造成射頻擾動，在此種情況下，使用者會被要求採取某些適當的對策。

警告

此为 A 级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对其干扰采取切实可行的措施。

Safety Compliance



Class 1 Laser Product

Appareil À Laser de Classe 1

When using a fiber optic media expansion module, never look at the transmit laser while it is powered on. Also, never look directly at the fiber TX port and fiber cable ends when they are powered on.

Ne regardez jamais le laser tant qu'il est sous tension. Ne regardez jamais directement le port TX (Transmission) à fibres optiques et les embouts de câbles à fibres optiques tant qu'ils sont sous tension.

SFP and SFP+ Regulatory Compliance

- Class 1
- EN60825-1:2007 2nd Edition or later, European standard
- FCC 21 CFR Chapter 1, Subchapter J in accordance with FDA and CDRH requirements
- Application of CE Mark in accordance with 2004/108/EEC EMC Directive and the 2006/95/EC Low Voltage Directives
- UL and/or CSA registered component for North America
- 47 CFR Part 15, Class A when installed into Canary products

Safety notices

This product is not intended for use in the direct field of view at visual display workplaces.

The acoustic measurement is 63.5 dB (A) for CE0152PB, 63.9 dB (A) for CE0152TB, 65.2 dB (A) for CE0128PB), 65.3 dB (A) for CE0128TB.

Installing the system as described in this guide meets the protective earth grounding requirements of National Electrical Code(NEC), UL/CSA/IEC/EN 60950-1 standards.

Maschinenlärminformations-Verordnung—3. GPSGV, der höchste Schalldruckpegel beträgt 63.5 dB (A) oder weniger(CE0152PB), 63.9 dB (A) oder weniger(CE0152TB), 65.2 dB (A) oder weniger(CE0128PB), 65.3 dB (A) oder weniger(CE0128TB).

Die Installation des Systems wie in dieser Anleitung beschrieben erfüllt die Anforderungen an die Schutzerdung nach NEC (National Electrical Code), UL / CSA / IEC / EN 60950-1.

Acoustique information sur le bruit Ordonnance tiers GPSGV, le niveau de pression acoustique le plus élevé est de 63,5 dB (A) ou moins.

L'installation du système tel que décrit dans ce guide est conforme aux exigences de mise à la terre de protection des normes NEC (Code national de l'électricité), UL / CSA / IEC / EN 60950-1.



Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions

Risque d'explosion si la piles est remplacée par un type incorrect. Jetez les piles usagées selon les instructions.

Explosionsgefahr durch batterie bei unbeabsichtigter art. Entsorgen sie gebrauchte batterien gemäss der anleitung.

Riesgo de explosión si la batería es de un tipo incorrente. Deseche las baterías usadas según la instrucción.

警告：如果將電池更換成錯誤類型的電池，會有爆炸的危險。電池只能更換為與製造商建議相同或等同類型的電池。

Safety Instructions

The following sections provide safety precautions to follow when installing the switch.

Safety Precautions

For your protection, observe the following safety precautions when setting up your equipment:

- Follow all cautions and instructions marked on the equipment.
- Only trained and qualified personnel are allowed to install or to replace this equipment.
- Never push objects of any kind through openings in the equipment. Dangerous voltages may be present. Conductive foreign objects could produce a short circuit that could cause fire, electric shock, or damage to your equipment.
- This product is intended for restricted access whereby access is controlled through the use of a means of security (for example, key, lock, tool, badge access) and personnel authorized for access have been instructed on the reasons for the restrictions and any precautions that need to be taken.
- Remove all metal jewelry, such as rings and watches, before installing or removing the device.
- Do not look directly at the fiber optic cable ends or inspect the cable ends with an optical lens.
- Do not install in direct sunlight, or a damp or dusty place.
- Do not expose the device to moisture or water.
- Disconnect all power supply cords before servicing.

Electrical Safety Precautions

For your protection, observe the following electrical safety precautions when setting up your equipment:

- Ensure that the voltage and frequency of your power source match the voltage and frequency inscribed on the equipment's electrical rating label.
- This switch is designed to work with power systems having a grounded neutral. To reduce the risk of electric shock, do not plug the switch into any other type of power system. Contact your facilities manager or a qualified electrician if you are not sure what type of power is supplied to your building.
- Not all power cords have the same current ratings. Do not use the power cord provided with your equipment for any other products or use. Household extension cords do not have overload protection and are not meant for use with these switches. Do not use household extension cords with this product.
- To prevent electric shock, do not remove the cover of this product. There are no user-serviceable parts inside. This unit contains hazardous voltages and should only be opened by a trained and qualified technician.
- Do not work on equipment or cables during periods of lightning activity.

- Check to see if there are any exposed copper strands coming from the installed wire. When this installation is done correctly there should be no exposed copper wire strands extending from the terminal block. Any exposed wiring can conduct harmful levels of electricity to persons touching the wires.
- The power source for the device should be located near the unit and should be easily accessible.
- Circuit Overloading: Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

Rack-mount Safety Precautions

For your protection, observe the following rack-mount safety precautions when setting up your equipment:

- Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (T_{ma}) specified by the manufacturer.
- 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.
- Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
- 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.
- Reliable Earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (for example, use of power strips).
- For safety, equipment should always be loaded from the bottom up. That is, install the equipment that will be mounted in the lowest part of the rack first, then the next higher systems, etc.
- To prevent the rack from tipping during equipment installation, the anti-tilt bar on the rack must be deployed.
- The mounting brackets provided must be used to mount the device securely in a rack-mount unit.

Introduction

The CE0128TB/CE0128PB/CE0152TB/CE0152PB Series switches are targeted for deployment in Small-to-Medium Businesses (SMB) providing 1 Gbps Ethernet wire-speed connections that can be used to uplink servers or to interconnect switches within the local network. For medium-to-large scale enterprise deployment, these switches provide an excellent means to interconnect edge and core switches.

Switches in this series support the latest IEEE 802.3az Energy-Efficient Ethernet (EEE) standard to save power while links are online or to automatically notify selective ports to enter standby mode when no traffic is transmitted or received.

Package Contents

After purchasing any of the switches in the series, the following items are included in the package:

- One CE0128TB/CE0128PB/CE0152TB/CE0152PB Series Switch
- One *Open Source Information EULA* document
- One *Regulatory Compliance Notices* documents
- One DB9-to-RJ45 console cable
- One pair of rack-mount brackets
- Eight Phillips-head rack-mount bracket screws

Note: If any of the above specified items are not found inside the package contents of the switch or are damaged in any way, contact your reseller immediately.

Switch Components

This chapter describes the CE0128TB/CE0128PB/CE0152TB/CE0152PB Series switch hardware components.

Front Panel Components

The front panel of switches in the series features the following components:

Figure 1. CE0128TB and CE0128PB Front Panel

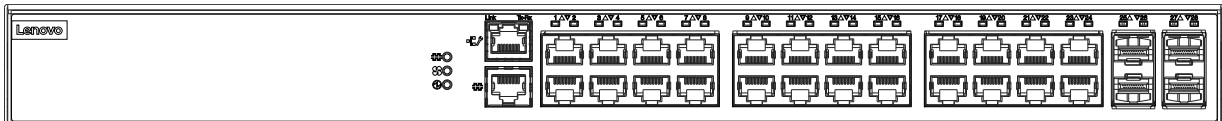
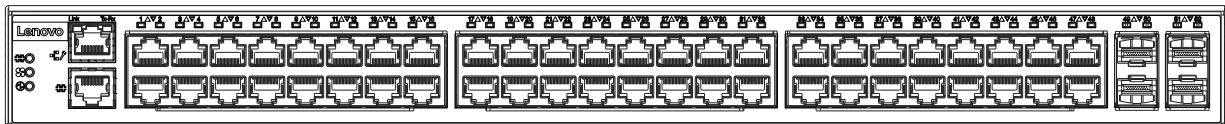


Figure 2. CE0152TB and CE0152PB Front Panel



Following are the ports found on the front panels of the switches in the series:

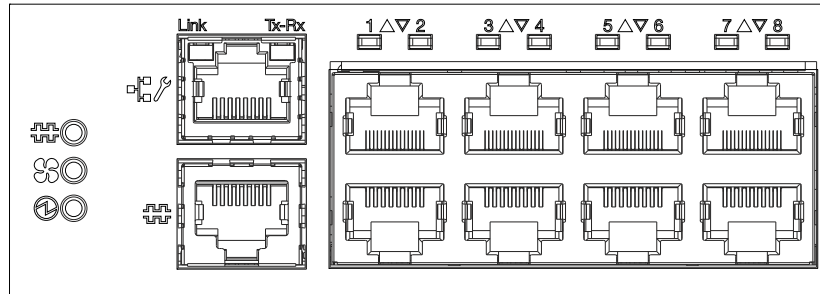
Table 1. Switch Ports

Port	Description
Management Port (MGMT)	One Out-Of-Band (OOB) RJ45 management port
Console Port	One RJ45 port for serial console access
RJ45 Ethernet Ports	CE0128TB: 24 Gigabit RJ45 ports operating at 10/100/1000 Mbps
	CE0128PB: 24 Gigabit RJ45 Power-over-Ethernet (PoE) ports operating at 10/100/1000 Mbps
	CE0152TB: 48 Gigabit RJ45 ports operating at 10/100/1000 Mbps
	CE0152PB: 48 Gigabit RJ45 Power-over-Ethernet (PoE) ports operating at 10/100/1000 Mbps
SFP+ Ports	4 Gigabit SFP+ ports operating at 1/10 Gbps

LED Indicators

The front panel of switches in the series feature the following LED indicators:

Figure 3. Front Panel LED Indicators



Following are the LED indicators found on the front panels of the switches in the series:

Table 2. Front Panel LED Indicators





LED Indicator	Color	Behavior	Description
Console 	Green	Solid light	Stacking Master or Standalone
		Off	Stacking Member
Fan 	Green	Solid light	Diagnostics passed and normal operation
		Off	No power
	Amber	Solid light	Fan failure
		Off	No power
Power 	Green	Solid light	Power on and normal operation
		Off	Power off or no power cable attached
Management Port  two LEDs: left LED - Link right LED - Speed	Green	Solid light	Right LED - Connection link up
			Left LED - 100 Mbps connection
		Blinking	Right LED - Data transmitting and receiving
		Off	Right LED - No data transmitting and receiving
Left LED - No connection, port disabled, or 10 Mbps connection			

Table 2. Front Panel LED Indicators

LED Indicator	Color	Behavior	Description
Link/Activity/Speed (RJ45 Ethernet Ports) (Amber LED on CE0128PB and CE0152PB only)	Green	Solid light	Connection active at 10/100/1000 Mbps
		Blinking	Data transmitting and receiving
		Off	No active connection or port disabled
	Amber	Solid light	Connection active at 10/100/1000 Mbps with PoE being supplied
		Blinking	Data transmitting and receiving with PoE being supplied
		Slow blinking	PoE supplied but no Ethernet link or port disabled
		Off	No active connection or port disabled
	Green/Amber	Alternating	PoE power fault
	Link/Activity/Speed (SFP+ Ports)	Green	Solid light
Blinking			Data transmitting and receiving
Off			No active connection or port disabled

Note: For more information about transceiver installation, see [“Installing Transceivers into the Transceiver Ports”](#) on page 24.

Back Panel Components

The back panel of switches in the series features the following components:

Figure 4. *CE0128TB Back Panel*

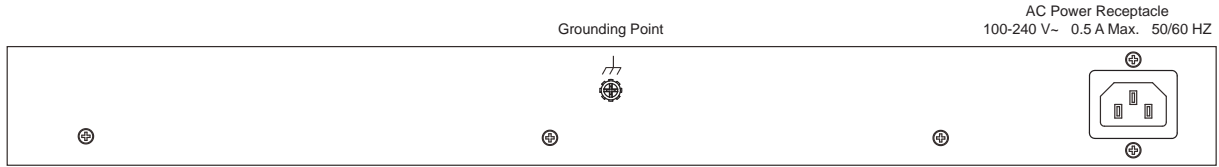


Figure 5. *CE0128PB Back Panel*

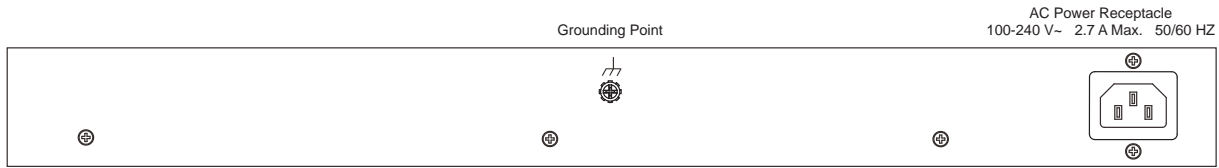


Figure 6. *CE0152TB Back Panel*

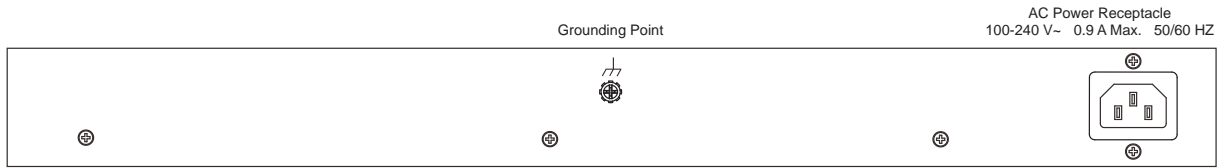
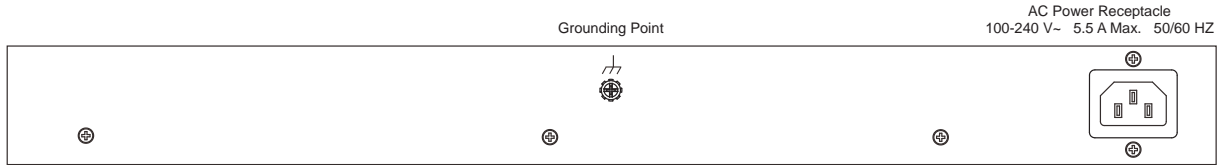


Figure 7. *CE0152PB Back Panel*



Following are the components found on the back panel of the switches in the series:

Table 3. *Back Panel Components*

Component	Description
Grounding Point	One electrical grounding screw
AC Power Receptacle	One AC power receptacle (IEC 60320 C14) This power supply supports any voltage power supply in the range from 100 to 240 VAC at 50 to 60 Hz

Side Panel Components

The side panels of the switches in the series feature the following components:

Figure 8. *CE0128TB Side Panels*

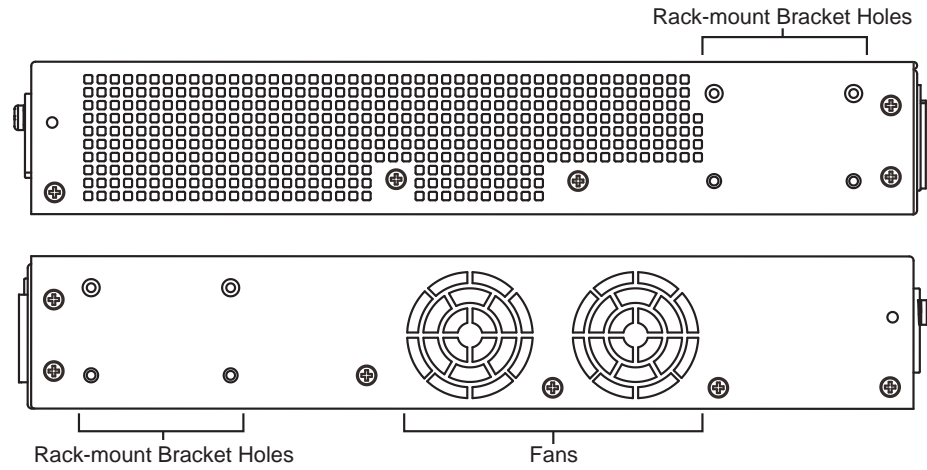


Figure 9. *CE0128PB Side Panels*

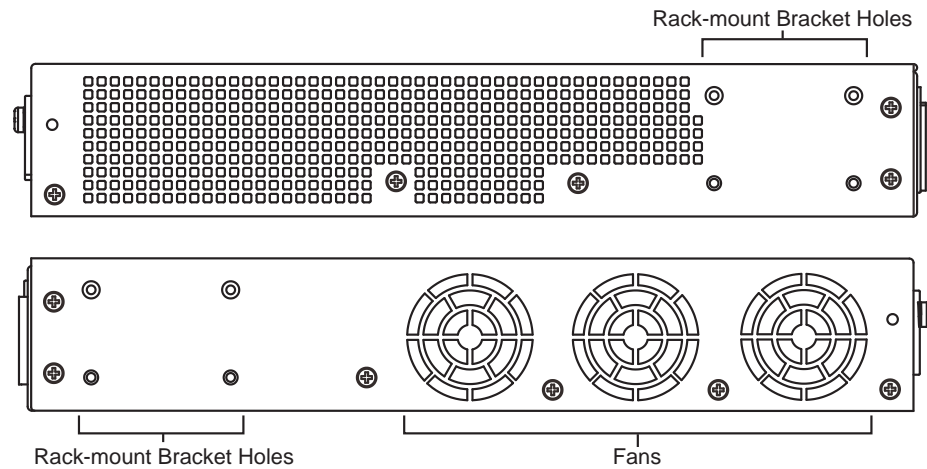
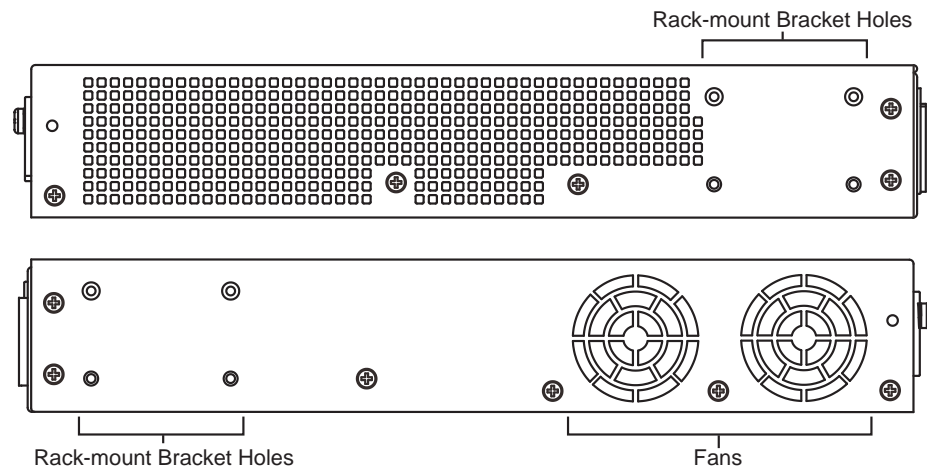


Figure 10. *CE0152TB and CE0152PB Side Panels*



Following are the components found on the side panels of the switches in the series:

Table 4. *Side Panel Components*

Component	Description
Fans	CE0128TB: Two ventilation fans on the right side panel
	CE0128PB: Three ventilation fans on the right side panel
	CE0152TB: Two ventilation fans on the right side panel
	CE0152PB: Two ventilation fans on the right side panel One ventilation fan on the left, inside (no circle opening)
Rack-mount Bracket Holes	Four rack-mount bracket screw holes on each side panel

Switches in the series have a built-in temperature sensor that measures the internal temperature of the switch and then automatically adjusts the speed of the fans to high-speed or low-speed, or turns them off.

Switches startup with fans at low speed. If the ambient temperature is under 35 °C, the fans function at low speed. If the ambient temperature is above 40 °C, the fans function at high speed.

Note: For more information about rack-mount installation, see [“Installation into a Rack”](#) on page 22.

Hardware Installation

This section discusses the hardware installation guidelines that administrators must follow in order to properly and safely install the switch into the appropriate environment.

Notes:

- Read the [“Safety Information” on page 5](#) before starting any installation discussed in this chapter.
- If the switch is a replacement switch, copy the product information from the original switch onto the RID label that is shipped with replacement switch and affix the new label to the bottom of the new switch.

Installation into a Rack

Switches in this series can be mounted in a standard 19 inch rack using the provided mounting brackets. The following section explains how to install the rack-mount brackets onto the switch and then mount the switch into a standard rack-mount unit.

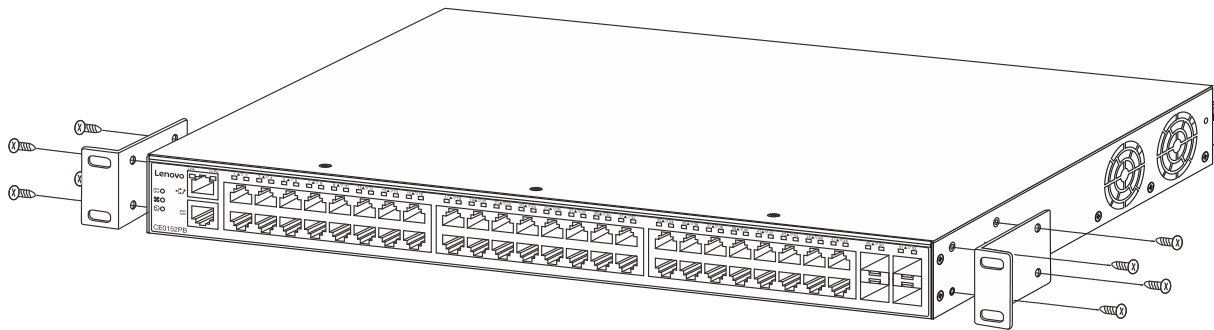
The following parts are used to install the switch into a rack-mount unit:

- One pair of rack-mount brackets
- Eight Phillips-head rack-mount bracket screws

Additional equipment needed to install the switch into a rack-mount unit:

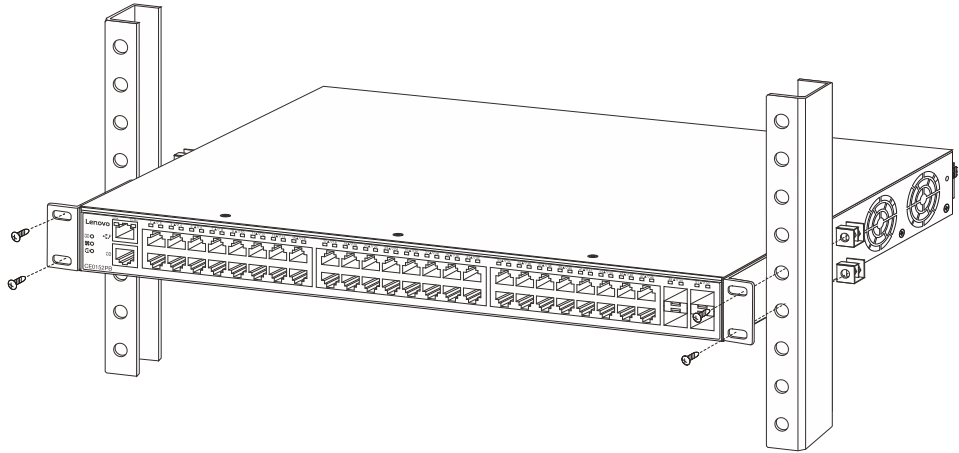
- One Phillips-head screwdriver. This screwdriver is used for the rack-mount bracket screws.
- One additional screwdriver. This screwdriver is used for the rack-mount unit screws and its type and size depends on the rack-mount unit screws being used.
- Four rack-mount unit screws. These screws are used to attach the switch onto to the rack-mount unit and are not included in the switch's packaging as rack-mount units differ at each installation site.
- Four rack-mount unit cage nuts. These cage nuts are used to attach the switch onto to the rack-mount unit and are not included in the switch's packaging as rack-mount units differ at each installation site.

The figure below illustrates how to install the frontal rack-mount brackets onto the switch:



1. Place the switch on a flat horizontal surface.
2. Position the frontal rack-mount bracket over the screw holes on the side of the switch. The ears of the bracket must be facing forward and outwards.
3. Use the frontal rack-mount screws and the Phillips-head screwdriver to fasten the bracket onto the side of the switch.
4. Repeat steps 1 to 3 for the other frontal rack-mount bracket on the other side of the switch.

The figure below illustrates how to complete the rack-mount installation:



Use the rack-mount unit screws, cage nuts, and the additional screwdriver to fasten the frontal rack-mount brackets onto the front of the rack-mount unit.

Note: Make sure that there is adequate space around the switch to allow for proper airflow, ventilation, and cooling.



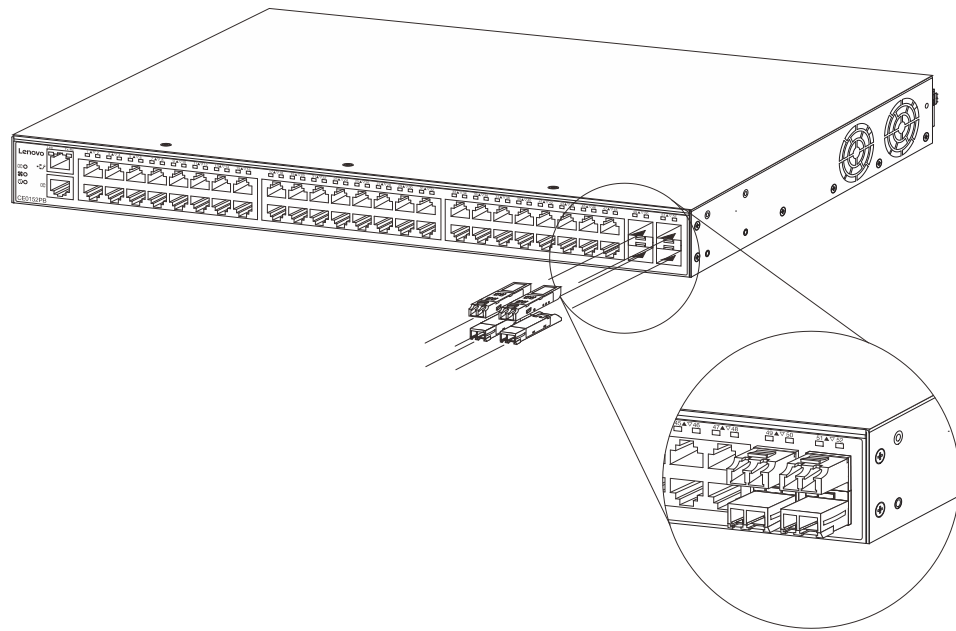
As a precaution, install the switch in a fairly cool and dry place within the acceptable temperature and humidity operating ranges.

Installing Transceivers into the Transceiver Ports

Switches in this series support 10 Gbps SFP+ ports. SFP+ technology allows a smooth transition from 10/100/1000 Mbps to 10 Gbps Ethernet infrastructures in switches. This switch supports both fiber and copper cabling solutions.

For low-cost cabling, copper-based 10 Gbps Twinaxial cables can be used, and for longer cable reaches, Short-Reach (SR) optical transceivers are excellent. Connectivity can be established from the SFP+ ports to 10 Gbps Ethernet switches or hosts using a fiber or copper cable that has SFP+ transceivers installed on both ends.

The figure below illustrates how to insert SFP+ transceivers into the switch's SFP+ ports:



Technical Specifications

The technical specifications for the CE0128TB/CE0128PB/CE0152TB/CE0152PB Series switches are described in the following sections.

Physical Characteristics

The physical characteristics of the CE0128TB/CE0128PB/CE0152TB/CE0152PB Series switches are listed in the following tables:

Table 5. *CE0128TB Physical Specifications*

Specification	Physical Characteristics
Dimension (H x W x D)	4.4 x 44 x 25.4 cm (1.73 x 17.3 x 10 in)
Weight	3.21 kg (7 lbs)

Table 6. *CE0128PB Physical Specifications*

Specification	Physical Characteristics
Dimension (H x W x D)	4.4 x 44 x 25.4 cm (1.73 x 17.3 x 10 in)
Weight	3.69 kg (8.1 lbs)

Table 7. *CE0152TB Physical Specifications*

Specification	Physical Characteristics
Dimension (H x W x D)	4.4 x 44 x 25.4 cm (1.73 x 17.3 x 10 in)
Weight	3.82 kg (8.4 lbs)

Table 8. *CE0152PB Physical Specifications*

Specification	Physical Characteristics
Dimension (H x W x D)	4.4 x 44 x 25.4 cm (1.73 x 17.3 x 10 in)
Weight	4.5 kg (9.9 lbs)

Environmental Specifications

The environmental specifications of the CE0128TB/CE0128PB/CE0152TB/CE0152PB Series switches are listed in the following table:

Table 9. *CE0128TB/CE0128PB/CE0152TB/CE0152PB Environmental Specifications*

Specification	Measurement
Temperature, operating	0°C to +50°C (32°F to 122°F)
Temperature, storage	-20°C to +70°C (-4°F to 158°F)
Humidity (non-condensing), operating	5% to 95%
Humidity (non-condensing), storage	0% to 95%
Altitude	0 to 3000 m (0 to 9843 ft)

Cooling Specifications

The cooling specifications of the CE0128TB/CE0128PB/CE0152TB/CE0152PB Series switches are listed in the following tables:

Table 10. *CE0128TB and CE0152TB Cooling Specifications*

Specification	Description
Number of Fans	2
Fan Speed	Automatic high and low speed depending on internal temperature

Table 11. *CE0128PB and CE0152PB Cooling Specifications*

Specification	Description
Number of Fans	3
Fan Speed	Automatic high and low speed depending on internal temperature

Power Specifications

The environmental specifications of the CE0128TB/CE0128PB/CE0152TB/CE0152PB Series switches are listed in the following tables:

Table 12. *CE0128TB Power Specifications*

Specification	Measurement
AC Input Voltage	100-240 VAC
AC Input Frequency	50-60 Hz
AC Power Supply Efficiency	85% to 88%
Power Consumption	Maximum 25 W (from 30 W PSU)

Table 13. *CE0128PB Power Specifications*

Specification	Measurement
AC Input Voltage	100-240 VAC
AC Input Frequency	50-60 Hz
AC Power Supply Efficiency	85% to 88%
Power Consumption	Maximum 235 W (from 260 W PSU)

Table 14. *CE0152TB Power Specifications*

Specification	Measurement
AC Input Voltage	100-240 VAC
AC Input Frequency	50-60 Hz
AC Power Supply Efficiency	85% to 88%
Power Consumption	Maximum 50 W (from 60 W PSU)

Table 15. *CE0152PB Power Specifications*

Specification	Measurement
AC Input Voltage	100-240 VAC
AC Input Frequency	50-60 Hz
AC Power Supply Efficiency	85% to 88%
Power Consumption	Maximum 400 W (from 460 W PSU)

Power-over-Ethernet Specifications

The Power-over-Ethernet (PoE) specifications of the CE0128PB and CE0152PB Series switches are listed in the following tables:

Table 16. *CE0128PB PoE Specifications*

Specification	Measurement
PoE Budget	Maximum 185 W (for 260 W PSU)
IEEE 802.3af (PoE)	Yes (Supplies 15.4 W per port)
IEEE 802.3at (PoE+)	Yes (Supplies 30 W per port)
Automatic PD Discovery	Yes (Supplies power immediately if PD device was detected)
PoE Safety	Automatically disable individual ports when electrical current is over 600 mA or when electrical short occurred

Table 17. *CE0152PB PoE Specifications*

Specification	Measurement
PoE Budget	Maximum 370 W (for 460 W PSU)
IEEE 802.3af (PoE)	Yes (Supplies 15.4 W per port)
IEEE 802.3at (PoE+)	Yes (Supplies 30 W per port)
Automatic PD Discovery	Yes (Supplies power immediately if PD device was detected)
PoE Safety	Automatically disable individual ports when electrical current is over 600 mA or when electrical short occurred

Note: The CE0128TB and CE0152TB Series switches do not support PoE.

Port Specifications

The port specifications of the CE0128TB/CE0128PB/CE0152TB/CE0152PB Series switches are listed in the following tables:

Table 18. *CE0128TB Port Specifications*

Specification	Measurement
Form Factor	1U Fixed Form Factor
Physical Ports	24 RJ45 Ethernet Ports (10/100/1000 Mbps)
	4 SFP+ Ports (1/10 Gbps)

Table 19. *CE0128PB Port Specifications*

Specification	Measurement
Form Factor	1U Fixed Form Factor
Physical Ports	24 RJ45 Ethernet Ports (10/100/1000 Mbps) with PoE
	4 SFP+ Ports (1/10 Gbps)

Table 20. *CE0152TB Port Specifications*

Specification	Measurement
Form Factor	1U Fixed Form Factor
Physical Ports	48 RJ45 Ethernet Ports (10/100/1000 Mbps)
	4 SFP+ Ports (1/10 Gbps)

Table 21. *CE0152PB Port Specifications*

Specification	Measurement
Form Factor	1U Fixed Form Factor
Physical Ports	48 RJ45 Ethernet Ports (10/100/1000 Mbps) with PoE
	4 SFP+ Ports (1/10 Gbps)

Getting Help and Technical Assistance

If you need help, service, or technical assistance or just want more information about Lenovo products, you will find a wide variety of sources available from Lenovo to assist you.

Use this information to obtain additional information about Lenovo and Lenovo products, and determine what to do if you experience a problem with your Lenovo system or optional device.

Before you call, make sure that you have taken these steps to try to solve the problem yourself.

If you believe that you require warranty service for your Lenovo product, the service technicians will be able to assist you more efficiently if you prepare before you call.

- Check all cables to make sure that they are connected.
- Check the power switches to make sure that the system and any optional devices are turned on.
- Check for updated software, firmware, and operating-system device drivers for your Lenovo product. The Lenovo Warranty terms and conditions state that you, the owner of the Lenovo product, are responsible for maintaining and updating all software and firmware for the product (unless it is covered by an additional maintenance contract). Your service technician will request that you upgrade your software and firmware if the problem has a documented solution within a software upgrade.
- If you have installed new hardware or software in your environment, check the [Lenovo Support portal](#) to make sure that the hardware and software is supported by your product., and where you can check for information to help you solve the problem.
- Gather the following information to provide to the service technician. This data will help the service technician quickly provide a solution to your problem and ensure that you receive the level of service for which you might have contracted.
 - Hardware and Software Maintenance agreement contract numbers, if applicable
 - Machine type number
 - Model number
 - Serial number
 - Current system UEFI and firmware levels
 - Other pertinent information such as error messages and logs
- Start the process of determining a solution to your problem by making the pertinent information available to the service technicians. The service technicians can start working on your solution as soon as you have completed and submitted an Electronic Service Request.

You can solve many problems without outside assistance by following the troubleshooting procedures that Lenovo provides in the online help or in the Lenovo product documentation. The Lenovo product documentation also

describes the diagnostic tests that you can perform. The documentation for most systems, operating systems, and programs contains troubleshooting procedures and explanations of error messages and error codes. If you suspect a software problem, see the documentation for the operating system or program.

Notices

Lenovo may not offer the products, services, or features discussed in this document in all countries. Consult your local Lenovo representative for information on the products and services currently available in your area.

Any reference to a Lenovo product, program, or service is not intended to state or imply that only that Lenovo product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any Lenovo intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any other product, program, or service.

Lenovo may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

Lenovo (United States), Inc.
1009 Think Place - Building One
Morrisville, NC 27560
U.S.A.

Attention: Lenovo Director of Licensing

LENOVO PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. Lenovo may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

The products described in this document are not intended for use in implantation or other life support applications where malfunction may result in injury or death to persons. The information contained in this document does not affect or change Lenovo product specifications or warranties.

Nothing in this document shall operate as an express or implied license or indemnity under the intellectual property rights of Lenovo or third parties. All information contained in this document was obtained in specific environments and is presented as an illustration. The result obtained in other operating environments may vary.

Lenovo may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Any references in this publication to non-Lenovo Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this Lenovo product, and use of those Web sites is at your own risk.

Any performance data contained herein was determined in a controlled environment. Therefore, the result obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

Trademarks

Lenovo, the Lenovo logo, Flex System, System x, NeXtScale System, and X-Architecture are trademarks of Lenovo in the United States, other countries, or both.

Intel and Intel Xeon are trademarks of Intel Corporation in the United States, other countries, or both.

Internet Explorer, Microsoft, and Windows are trademarks of the Microsoft group of companies.

Linux is a registered trademark of Linus Torvalds.

Other company, product, or service names may be trademarks or service marks of others.

Important Notes

Processor speed indicates the internal clock speed of the microprocessor; other factors also affect application performance.

CD or DVD drive speed is the variable read rate. Actual speeds vary and are often less than the possible maximum.

When referring to processor storage, real and virtual storage, or channel volume, KB stands for 1,024 bytes, MB stands for 1,048,576 bytes and GB stands for 1,073,741,824 bytes.

When referring to hard disk drive capacity or communications volume, MB stands for 1,000,000 bytes and GB stands for 1,000,000,000 bytes. Total user-accessible capacity can vary depending on operating environments.

Maximum internal hard disk drive capacities assume the replacement of any standard hard disk drives and population of all hard-disk-drive bays with the largest currently supported drives that are available from Lenovo.

Maximum memory might require replacement of the standard memory with an optional memory module.

Each solid-state memory cell has an intrinsic, finite number of write cycles that the cell can incur. Therefore, a solid-state device has a maximum number of write cycles that it can be subjected to, expressed as total bytes written (TBW). A device that has exceeded this limit might fail to respond to system-generated commands or might be incapable of being written to. Lenovo is not responsible for replacement of a device that has exceeded its maximum guaranteed number of program/erase cycles, as documented in the Official Published Specifications for the device.

Lenovo makes no representations or warranties with respect to non-Lenovo products. Support (if any) for the non-Lenovo products is provided by the third party, not Lenovo.

Some software might differ from its retail version (if available) and might not include user manuals or all program functionality.

Open Source Information

This Lenovo Switch may include software made publicly available by Lenovo, including software licensed under the General Public License and/or the Lesser General Public License (the "open source software").

You may obtain the corresponding machine-readable copy for any such open source software licensed under the General Public License and/or the Lesser General Public License (or any other license requiring us to make a written offer to provide corresponding source code to you) from Lenovo for a period of three years without charge except for the cost of media, shipping, and handling, upon written request to Lenovo. This offer is valid to anyone in receipt of this Lenovo Switch. You may send your request in writing to the address below accompanied by a check or money order for \$5 to:

Lenovo Legal Department
8001 Development Dr.
Morrisville, NC 27560
U.S.A.

Attention: Open Source Team / Source Code Requests

Please include both a "NOS" Release version and model number or Machine Type (MT) of your Lenovo Switch as part of your request. Be sure to provide a return address.

The open source software is distributed in hope it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See for example the GNU General Public License and/or the Lesser General Public License for more information.

Visit <https://datacentersupport.lenovo.com/us/en/> and enter the model number or Machine Type (MT) for your Switch to view additional information regarding licenses, acknowledgments and required copyright notices for the open source software used on your Switch.

Recycling Information

Lenovo encourages owners of information technology (IT) equipment to responsibly recycle their equipment when it is no longer needed. Lenovo offers a variety of programs and services to assist equipment owners in recycling their IT products. For information on recycling Lenovo products, go to:

<https://www.lenovo.com/recycling>

Particulate Contamination

Attention: Airborne particulates (including metal flakes or particles) and reactive gases acting alone or in combination with other environmental factors such as humidity or temperature might pose a risk to the device that is described in this document.

Risks that are posed by the presence of excessive particulate levels or concentrations of harmful gases include damage that might cause the device to malfunction or cease functioning altogether. This specification sets forth limits for particulates and gases that are intended to avoid such damage. The limits must not be viewed or used as definitive limits, because numerous other factors, such as temperature or moisture content of the air, can influence the impact of particulates or environmental corrosives and gaseous contaminant transfer. In the absence of specific limits that are set forth in this document, you must implement practices that maintain particulate and gas levels that are consistent with the protection of human health and safety. If Lenovo determines that the levels of particulates or gases in your environment have caused damage to the device, Lenovo may condition provision of repair or replacement of devices or parts on implementation of appropriate remedial measures to mitigate such environmental contamination. Implementation of such remedial measures is a customer responsibility..

Contaminant	Limits
Particulate	<ul style="list-style-type: none">• The room air must be continuously filtered with 40% atmospheric dust spot efficiency (MERV 9) according to ASHRAE Standard 52.2¹.• Air that enters a data center must be filtered to 99.97% efficiency or greater, using high-efficiency particulate air (HEPA) filters that meet MIL-STD-282.• The deliquescent relative humidity of the particulate contamination must be more than 60%².• The room must be free of conductive contamination such as zinc whiskers.
Gaseous	<ul style="list-style-type: none">• Copper: Class G1 as per ANSI/ISA 71.04-1985³• Silver: Corrosion rate of less than 300 Å in 30 days

¹ ASHRAE 52.2-2008 - *Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size*. Atlanta: American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.

² The deliquescent relative humidity of particulate contamination is the relative humidity at which the dust absorbs enough water to become wet and promote ionic conduction.

³ ANSI/ISA-71.04-1985. *Environmental conditions for process measurement and control systems: Airborne contaminants*. Instrument Society of America, Research Triangle Park, North Carolina, U.S.A.

Telecommunication Regulatory Statement

This product may not be certified in your country for connection by any means whatsoever to interfaces of public telecommunications networks. Further certification may be required by law prior to making any such connection. Contact a Lenovo representative or reseller for any questions.

Electronic Emission Notices

When you attach a monitor to the equipment, you must use the designated monitor cable and any interference suppression devices that are supplied with the monitor.

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 to meet FCC emission limits. Lenovo 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 might 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 - Compliance to the Electromagnetic Compatibility Directive

This product is in conformity with the protection requirements of EU Council Directive 2004/108/EC (until April 19, 2016) and EU Council Directive 2014/30/EU (from April 20, 2016) on the approximation of the laws of the Member States relating to electromagnetic compatibility. Lenovo cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the installation of option cards from other manufacturers.

This product has been tested and found to comply with the limits for Class A equipment according to European Standards harmonized in the Directives in compliance. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.



Lenovo, Einsteinova 21, 851 01 Bratislava, Slovakia

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.

Germany Class A Statement

Deutschsprachiger EU Hinweis:

Hinweis für Geräte der Klasse A EU-Richtlinie zur Elektromagnetischen Verträglichkeit

Dieses Produkt entspricht den Schutzanforderungen der EU-Richtlinie 2014/30/EU (früher 2004/108/EC) zur Angleichung der Rechtsvorschriften über die elektromagnetische Verträglichkeit in den EU-Mitgliedsstaaten und hält die Grenzwerte der Klasse A der Norm gemäß Richtlinie.

Um dieses sicherzustellen, sind die Geräte wie in den Handbüchern beschrieben zu installieren und zu betreiben. Des Weiteren dürfen auch nur von der Lenovo empfohlene Kabel angeschlossen werden. Lenovo übernimmt keine Verantwortung für die Einhaltung der Schutzanforderungen, wenn das Produkt ohne Zustimmung der Lenovo verändert bzw. wenn Erweiterungskomponenten von Fremdherstellern ohne Empfehlung der Lenovo gesteckt/eingebaut werden.

Deutschland:

Einhaltung des Gesetzes über die elektromagnetische Verträglichkeit von Betriebsmitteln

Dieses Produkt entspricht dem „Gesetz über die elektromagnetische Verträglichkeit von Betriebsmitteln“ EMVG (früher „Gesetz über die elektromagnetische Verträglichkeit von Geräten“). Dies ist die Umsetzung der EU-Richtlinie 2014/30/EU (früher 2004/108/EC) in der Bundesrepublik Deutschland.

Zulassungsbescheinigung laut dem Deutschen Gesetz über die elektromagnetische Verträglichkeit von Betriebsmitteln, EMVG vom 20. Juli 2007 (früher Gesetz über die elektromagnetische Verträglichkeit von Geräten), bzw. der EMV EU Richtlinie 2014/30/EU (früher 2004/108/EC), für Geräte der Klasse A.

Dieses Gerät ist berechtigt, in Übereinstimmung mit dem Deutschen EMVG das EG-Konformitätszeichen - CE - zu führen. Verantwortlich für die Konformitätserklärung nach Paragraph 5 des EMVG ist die Lenovo (Deutschland) GmbH, Meitnerstr. 9, D-70563 Stuttgart.

Informationen in Hinsicht EMVG Paragraph 4 Abs. (1) 4:

Das Gerät erfüllt die Schutzanforderungen nach EN 55024 und EN 55022 Klasse A.

Nach der EN 55022: „Dies ist eine Einrichtung der Klasse A. Diese Einrichtung kann im Wohnbereich Funkstörungen verursachen; in diesem Fall kann vom Betreiber verlangt werden, angemessene Maßnahmen durchzuführen und dafür aufzukommen.“

Nach dem EMVG: „Geräte dürfen an Orten, für die sie nicht ausreichend entstört sind, nur mit besonderer Genehmigung des Bundesministers für Post und Telekommunikation oder des Bundesamtes für Post und Telekommunikation betrieben werden. Die Genehmigung wird erteilt, wenn keine elektromagnetischen Störungen zu erwarten sind.“ (Auszug aus dem EMVG, Paragraph 3, Abs. 4). Dieses Genehmigungsverfahren ist nach Paragraph 9 EMVG in Verbindung mit der entsprechenden Kostenverordnung (Amtsblatt 14/93) kostenpflichtig.

Anmerkung: Um die Einhaltung des EMVG sicherzustellen sind die Geräte, wie in den Handbüchern angegeben, zu installieren und zu betreiben.

Japan VCCI Class A Statement

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

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.

Japan Electronics and Information Technology Industries Association (JEITA) Statement

高調波ガイドライン適合品

Japan Electronics and Information Technology Industries Association (JEITA)
Confirmed Harmonics Guidelines (products less than or equal to 20 A per phase)

高調波ガイドライン準用品

Japan Electronics and Information Technology Industries Association (JEITA)
Confirmed Harmonics Guidelines with Modifications (products greater than 20 A per phase).

Korea Communications Commission (KCC) Statement

이 기기는 업무용(A급)으로 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.

This is electromagnetic wave compatibility equipment for business (Type A). Sellers and users need to pay attention to it. This is for any areas other than home.

Russia Electromagnetic Interference (EMI) Class A statement

ВНИМАНИЕ! Настоящее изделие относится к классу А. В жилых помещениях оно может создавать радиопомехи, для снижения которых необходимы дополнительные меры

People's Republic of China Class A electronic emission statement

中华人民共和国“A类”警告声明

声明

此为A级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对其干扰采取切实可行的措施。

Taiwan Class A compliance statement

警告使用者：
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

Taiwan BSMI RoHS declaration

設備名稱：三層交換器 · 型號 (型式) : CE0128TB/CE0128PB/CE0152TB/CE0152PB Equipment Name · Type Designation (Type)						
單元 Unit	限用物質及其化學符號 Restricted Substances and their Chemical Symbols					
	鉛 Lead (Pb)	汞 Mercury (Hg)	鎘 Cadmium (Cd)	六價鉻 Hexavalent chromium (Cr ⁺⁶)	多溴聯苯 Polybrominated biphenyls (PBB)	多溴二苯醚 Polybrominated diphenyl ethers (PBDE)
外殼	○	○	○	○	○	○
印刷電路板	-	○	○	○	○	○
電源供應器	-	○	○	○	○	○
線材	-	○	○	○	○	○
<p>備考 1. “超出 0.1 wt %” 及 “超出 0.01 wt %” 係指限用物質之百分比含量超出百分比含量基準值。</p> <p>Note 1: “Exceeding 0.1 wt %” and “exceeding 0.01 wt %” indicate that the percentage content of the restricted substance exceeds the reference percentage value of presence condition.</p> <p>備考 2. “○” 係指該項限用物質之百分比含量未超出百分比含量基準值。</p> <p>Note 2: “?” indicates that the percentage content of the restricted substance does not exceed the reference percentage value of presence.</p> <p>備考 3. “-” 係指該項限用物質為排除項目。</p> <p>Note 3: The “-” indicates that the restricted substance corresponds to the exemption.</p>						

