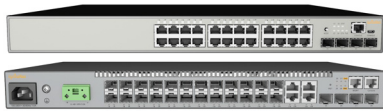


# Quick Start Guide

28-Port L2 Gigabit Ethernet PoE Switches

FNS-PoE-24, FNS-SFP-24

## 1. Unpack the Switch and Check Contents



FNS-PoE-24

FNS-SFP-24



Mounting Kit — 4 brackets and 10 screws



Four adhesive foot pads



Grounding wire



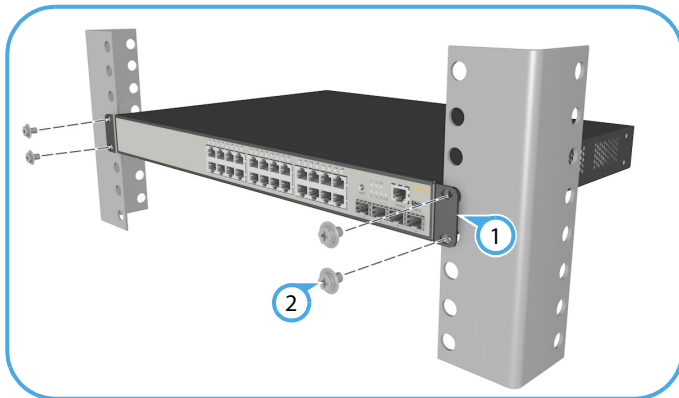
Power cord— Japan, US, Continental Europe, or UK



Documentation—*Quick Start Guide* (this document)

## 2. Mount the Switch

### a. Mounting in a Rack

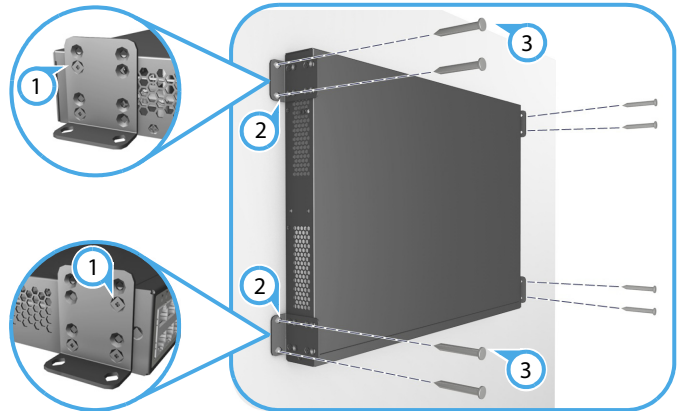


- 1 Attach the brackets to the front of the switch.
- 2 Use the screws and cage nuts supplied with the rack to secure the switch in the rack.

**Caution:** Installing the switch in a rack requires two people. One person should position the switch in the rack, while the other secures it using the rack screws.

**Note:** The switch can also be installed on a desktop or shelf using the included adhesive rubber foot pads.

### b. Mounting on a Wall

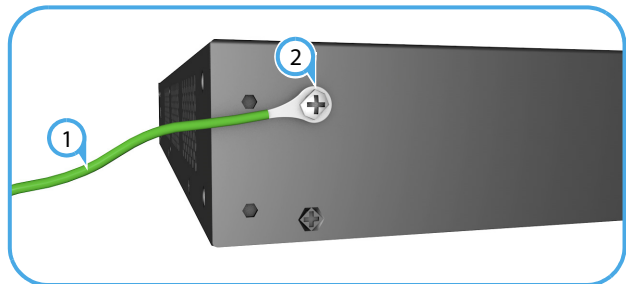


**Caution:** Wall mount the switch with the network ports facing down.

**Caution:** Wall mount the switch using four brackets (included) attached to the front and rear of the switch.

- 1 Rotate the brackets 90 degrees and attach them to the front and rear of the switch. Use three screws for the front brackets and two screws for the rear brackets.
- 2 In the required location, mark and drill eight holes in the wall for the wall anchors (not included).
- Note:** For a wood wall, drilling holes and using wall anchors is not required.
- 3 Mount the switch on the wall and secure it in place using eight #12 wood screws (not included).

## 3. Ground the Switch

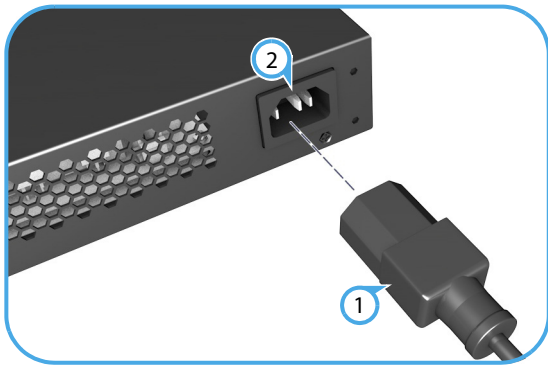


- 1 Ensure the rack on which the switch is to be mounted is properly grounded and in compliance with ETSI ETS 300 253. Verify that there is a good electrical connection to the grounding point on the rack (no paint or isolating surface treatment).
- 2 Attach the included grounding wire to the grounding point on the switch rear panel, and then to rack ground.

**Caution:** The earth connection must not be removed unless all supply connections have been disconnected.

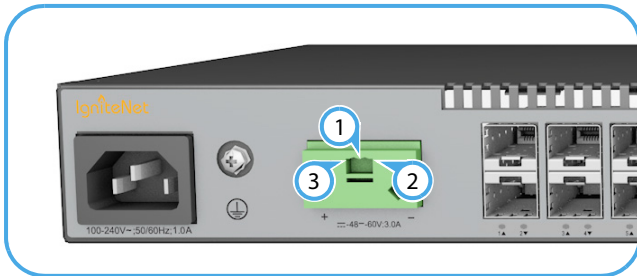
## 4. Connect Power

### a. AC Power



- 1 Plug the power cord into a 100-240 VAC, 50-60 Hz AC power source.
- 2 Insert the other end of the power cord directly into the AC input socket on the back of the switch.

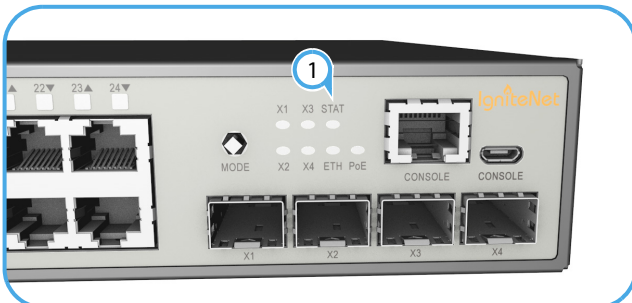
### b. DC Power



**Warning:** Before wiring the DC plug or connecting power to the switch, ensure that power to the feed lines is turned off at the supply circuit breaker or disconnected from the power bus.

- 1 The FNS-SFP-24 switch supports the option of connecting an external -48 to -60 VDC power source to its DC terminal block.
- 2 Connect the -48 VDC power feed wire to the DC plug "-" pin.
- 3 Connect the ground/return wire to the DC plug "+" pin.

## 5. Verify Switch Operation

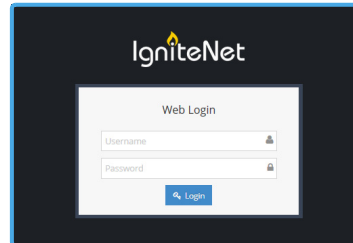


- 1 Verify basic switch operation by checking the system LEDs. When operating normally, the following LEDs should be on green.
  - ◆ FNS-PoE-24: STAT and ETH
  - ◆ FNS-SFP-24: PWR and DIAG

## 6. Connect to the Web User Interface

To access the web interface, connect a PC directly to a switch RJ-45 port. In a web browser, enter the DHCP-assigned IP address to access the web login page.

The switch IP address is automatically assigned through DHCP by default. If a DHCP server is not available on the network, connect to the switch console port and use the command-line interface (CLI) to assign an IP address to the switch's default VLAN (see following section "Setting an IP Address Using the CLI").



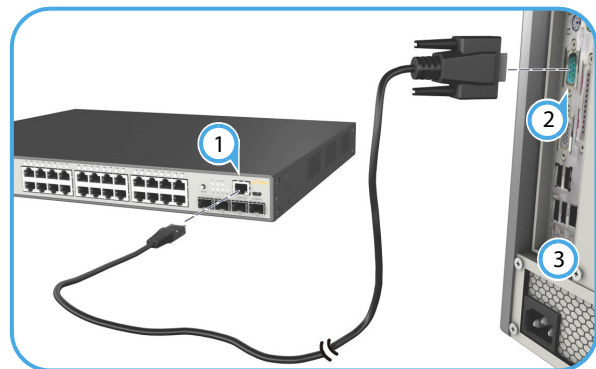
Log in to the web interface using the default settings:

- ◆ Username — admin
- ◆ Password — admin



**Note:** For further information on switch configuration, refer to the *Web Management Guide* and *CLI Reference Guide*.

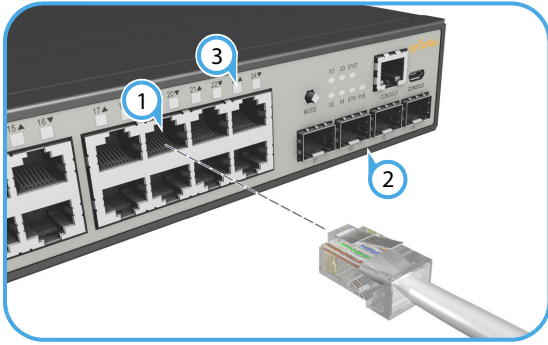
### a. Setting an IP Address Using the CLI



- 1 Connect a PC to the switch console port using an RJ-45 to DB-9 console cable.
- 2 Configure the PC's serial port: 115200 bps, 8 characters, no parity, one stop bit, 8 data bits, and no flow control.
- 3 Log in to the CLI using default settings: Username "admin" and password "admin." Enter the following CLI commands to set an IP address for VLAN 1.

```
Console#configure
Console(config)#interface vlan 1
Console(config-if)#ip address 192.168.1.5
255.255.255.0
```

## 7. Connect Network Cables



- 1 For RJ-45 ports, connect 100-ohm Category 5, 5e or better twisted-pair cable.
- 2 For the SFP/SFP+ slots, first install SFP/SFP+ transceivers and then connect fiber optic cabling to the transceiver ports. The following transceivers are supported:
  - ◆ 10GBASE-CR
  - ◆ 10GBASE-SR
  - ◆ 1000BASE-SX
  - ◆ 1000BASE-LX
  - ◆ 1000BASE-T
- 3 As connections are made, check the port status LEDs to be sure the links are valid. Press the Mode button to change from Ethernet to PoE status:
  - ◆ On/Blinking Green — Port has a valid link. Blinking indicates network activity.
  - ◆ On Amber — Port is supplying PoE power.

## Safety and Regulatory Information

### FCC Class A

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.

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

You may use unshielded twisted-pair (UTP) for RJ-45 connections - Category 3 or better for 10 Mbps connections, Category 5 or better for 100 Mbps connections, Category 5, 5e, or 6 for 1000 Mbps connections. For fiber optic connections, you may use 50/125 or 62.5/125 micron multimode fiber or 9/125 micron single-mode fiber.

### CE Mark

#### CE Mark Declaration of Conformance for EMI and Safety (EEC)

This information technology equipment complies with the requirements of the Council Directive 2004/108/EC on the Approximation of the laws of the Member States relating to Electromagnetic Compatibility and 2006/95/EC for electrical equipment used within certain voltage limits and the Amendment Directive 93/68/EEC. For the evaluation of the compliance with these Directives, the following standards were applied:

#### RFI Emission:

- ◆ Limit according to EN 55022:2010, Class A
- ◆ Limit for harmonic current emission according to EN 61000-3-2:2009, Class A
- ◆ Limitation of voltage fluctuation and flicker in low-voltage supply system according to EN 61000-3-3:2008

#### Immunity:

- ◆ Product family standard according to EN 55024:2010
- ◆ Electrostatic Discharge according to IEC 61000-4-2:2008
- ◆ Radio-frequency electromagnetic field according to IEC 61000-4-3:2010
- ◆ Electrical fast transient/burst according to IEC 61000-4-4:2011
- ◆ Surge immunity test according to IEC 61000-4-5:2005
- ◆ Immunity to conducted disturbances, Induced by radio-frequency fields: IEC 61000-4-6:2008
- ◆ Power frequency magnetic field immunity test according to IEC 61000-4-8:2009
- ◆ Voltage dips, short interruptions and voltage variations immunity test according to IEC 61000-4-11:2004

#### LVD:

- ◆ EN 60950-1:2006+A11:2009: 2009+A1: 2010+A12: 2011



The Declaration of Conformity (DoC) can be obtained from [www.ignitenet.com/support](http://www.ignitenet.com/support).

## Laser Safety

**Warning:** Fiber Optic Port Safety:



When using a fiber optic port, 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.

**Avertissement:** Ports pour fibres optiques - sécurité sur le plan optique:



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.

**Warnhinweis:** Faseroptikanschlüsse - Optische Sicherheit:



Niemals ein Übertragungslaser betrachten, während dieses eingeschaltet ist. Niemals direkt auf den Faser-TX-Anschluß und auf die Faserkabelenden schauen, während diese eingeschaltet sind.

## PSE Alarm

本製品に同梱いたしております電源コードセットは、本製品専用です。本電源コードセットは、本製品以外の製品並びに他の用途でご使用いただくことは出来ません。製品本体に同梱された電源コードセットを利用し、他製品の電源コードセットを使用しないで下さい。

## Power Cord Safety

Please read the following safety information carefully before installing the switch:

**Warning:** Installation and removal of the unit must be carried out by qualified personnel only.

- ◆ The unit must be connected to an earthed (grounded) outlet to comply with international safety standards.
- ◆ Do not connect the unit to an A.C. outlet (power supply) without an earth (ground) connection.
- ◆ The appliance coupler (the connector to the unit and not the wall plug) must have a configuration for mating with an EN 60320/IEC 320 appliance inlet.
- ◆ The socket outlet must be near to the unit and easily accessible. You can only remove power from the unit by disconnecting the power cord from the outlet.
- ◆ This unit operates under SELV (Safety Extra Low Voltage) conditions according to IEC 60950. The conditions are only maintained if the equipment to which it is connected also operates under SELV conditions.

France and Peru only

This unit cannot be powered from IT† supplies. If your supplies are of IT type, this unit must be powered by 230 V (2P+T) via an isolation transformer ratio 1:1, with the secondary connection point labelled Neutral, connected directly to earth (ground).

† Impédance à la terre

**Important!** Before making connections, make sure you have the correct cord set. Check it (read the label on the cable) against the following:

### Power Cord Set

U.S.A. and Canada	The cord set must be UL-approved and CSA certified. The minimum specifications for the flexible cord are: - No. 18 AWG - not longer than 2 meters, or 16 AWG. - Type SV or SJ - 3-conductor The cord set must have a rated current capacity of at least 10 A The attachment plug must be an earth-grounding type with NEMA 5-15P (15 A, 125 V) configuration.
Denmark	The supply plug must comply with Section 107-2-D1, Standard DK2-1a or DK2-5a.
Switzerland	The supply plug must comply with SEV/ASE 1011.
U.K.	The supply plug must comply with BS1363 (3-pin 13 A) and be fitted with a 5 A fuse which complies with BS1362. The mains cord must comply with IEC 60227 (designation 60227 IEC 52).
Europe	The supply plug must comply with CEE7/7 ("SCHUKO"). The mains cord must comply with IEC 60227 (designation 60227 IEC 52). IEC-320 receptacle.

Veillez lire à fond l'information de la sécurité suivante avant d'installer le Switch:

**Avertissement:** L'installation et la dépose de ce groupe doivent être confiés à un personnel qualifié.

- ◆ Ne branchez pas votre appareil sur une prise secteur (alimentation électrique) lorsqu'il n'y a pas de connexion de mise à la terre (mise à la masse).
- ◆ Vous devez raccorder ce groupe à une sortie mise à la terre (mise à la masse) afin de respecter les normes internationales de sécurité.
- ◆ Le coupleur d'appareil (le connecteur du groupe et non pas la prise murale) doit respecter une configuration qui permet un branchement sur une entrée d'appareil EN 60320/IEC 320.
- ◆ La prise secteur doit se trouver à proximité de l'appareil et son accès doit être facile. Vous ne pouvez mettre l'appareil hors circuit qu'en débranchant son cordon électrique au niveau de cette prise.
- ◆ L'appareil fonctionne à une tension extrêmement basse de sécurité qui est conforme à la norme IEC 60950. Ces conditions ne sont maintenues que si l'équipement auquel il est raccordé fonctionne dans les mêmes conditions.

France et Pérou uniquement:

Ce groupe ne peut pas être alimenté par un dispositif à impédance à la terre. Si vos alimentations sont du type impédance à la terre, ce groupe doit être alimenté par une tension de 230 V (2 P+T) par le biais d'un transformateur d'isolement à rapport 1:1, avec un point secondaire de connexion portant l'appellation Neutre et avec raccordement direct à la terre (masse).

**Cordon électrique** - Il doit être agréé dans le pays d'utilisation

Etats-Unis et Canada:	Le cordon doit avoir reçu l'homologation des UL et un certificat de la CSA. Les spécifications minimales pour un câble flexible sont AWG No. 18, ou AWG No. 16 pour un câble de longueur inférieure à 2 mètres. - type SV ou SJ - 3 conducteurs Le cordon doit être en mesure d'acheminer un courant nominal d'au moins 10 A. La prise femelle de branchement doit être du type à mise à la terre (mise à la masse) et respecter la configuration NEMA 5-15P (15 A, 125 V).
Danemark:	La prise mâle d'alimentation doit respecter la section 107-2 D1 de la norme DK2 1a ou DK2 5a.
Suisse:	La prise mâle d'alimentation doit respecter la norme SEV/ASE 1011.
Europe	La prise secteur doit être conforme aux normes CEE 7/7 ("SCHUKO") Le cordon d'alimentation doit être conforme à la norme IEC 60227 (IEC 60227 désignation 52)

Bitte unbedingt vor dem Einbauen des Switches die folgenden Sicherheitsanweisungen durchlesen:

**Warnung:** Die Installation und der Ausbau des Geräts darf nur durch Fachpersonal erfolgen.

- ◆ Das Gerät sollte nicht an eine ungeerdete Wechselstromsteckdose angeschlossen werden.
- ◆ Das Gerät muß an eine geerdete Steckdose angeschlossen werden, welche die internationalen Sicherheitsnormen erfüllt.
- ◆ Der Gerätestecker (der Anschluß an das Gerät, nicht der Wandsteckdosenstecker) muß einen gemäß EN 60320/IEC 320 konfigurierten Geräteeingang haben.
- ◆ Die Netzsteckdose muß in der Nähe des Geräts und leicht zugänglich sein. Die Stromversorgung des Geräts kann nur durch Herausziehen des Gerätenetzkabels aus der Netzsteckdose unterbrochen werden.
- ◆ Der Betrieb dieses Geräts erfolgt unter den SELV-Bedingungen (Sicherheitskleinstspannung) gemäß IEC 60950. Diese Bedingungen sind nur gegeben, wenn auch die an das Gerät angeschlossenen Geräte unter SELV-Bedingungen betrieben werden.

**Stromkabel.** Dies muss von dem Land, in dem es benutzt wird geprüft werden:

Schweiz	Dieser Stromstecker muß die SEV/ASE 1011 Bestimmungen einhalten.
Europe	Das Netzkabel muss mit IEC 60227 (IEC 60227 entsprechen Bezeichnung 52) Der Netzstecker muß die Norm CEE 7/7 erfüllen ("SCHUKO").

**Warnings and Cautionary Messages**

**Warning:** This product does not contain any serviceable user parts.

**Warning:** Installation and removal of the unit must be carried out by qualified personnel only.

**Warning:** When connecting this device to a power outlet, connect the field ground lead on the tri-pole power plug to a valid earth ground line to prevent electrical hazards.

**Warning:** This switch uses lasers to transmit signals over fiber optic cable. The lasers are compliant with the requirements of a Class 1 Laser Product and are inherently eye safe in normal operation. However, you should never look directly at a transmit port when it is powered on.

**Warning:** When selecting a fiber SFP/SFP+ device, considering safety, please make sure that it can function at a temperature that is not less than the recommended maximum operational temperature of the product. You must also use an approved Laser Class 1 SFP/SFP+ transceiver.



**Caution:** Wear an anti-static wrist strap or take other suitable measures to prevent electrostatic discharge when handling this equipment.

**Caution:** Do not plug a phone jack connector in the RJ-45 port. This may damage this device.

**Caution:** Use only twisted-pair cables with RJ-45 connectors that conform to FCC standards.

**Caution:** Installing the switch in a rack requires two people: One should position the switch in the rack, while the other secures it using the mounting screws.



## Hardware Specifications

### Switch Chassis

Size (WxDxH)	FNS-PoE-24: 44.0 x 22.0 x 4.4 cm (17.32 x 8.66 x 1.73 in) FNS-SFP-24: 44.0 x 22.0 x 4.4 cm (17.32 x 8.66 x 1.73 in)
Weight	FNS-PoE-24: 4.53 kg (10.0 lb) FNS-SFP-24: 2.82 kg (6.22 lb)
Temperature	Operating: 0° C to 50° C (32° F to 122° F) Storage: -40° C to 70° C (-40° F to 158° F)
Humidity	Operating: 5% to 95% (non-condensing)
Network Ports	FNS-PoE-24: <ul style="list-style-type: none"> <li>◆ 24 1000BASE-T RJ-45 PoE ports</li> <li>◆ 4 10GBASE SFP+ ports</li> </ul> FNS-SFP-24: <ul style="list-style-type: none"> <li>◆ 20 1000BASE-X SFP ports</li> <li>◆ 4 Combo 1000BASE-T/SFP ports</li> <li>◆ 4 10GBASE SFP+ ports</li> </ul>
Console Interface	RJ-45 (RS-232) serial port
Status LEDs	System: STAT, ETH, POE Port: Status (link, activity, PoE)

### Switch Architecture

Packet Buffer	1.5 Mbytes
Aggregate Bandwidth	128 Gbps
Switching Database	16K MAC address entries 1024 static MAC addresses 1023 multicast groups 4K VLAN IDs
Forwarding Mode	Store-and-forward
Throughput	Wire speed
Flow Control	Full-duplex: IEEE 802.3x Half-duplex: Back pressure

### Management Access

In-Band	Telnet, SSH, SNMP, or HTTP/HTTPS
Out-of-Band	Serial console port
Software Loading	FTP/TFTP or HTTP in-band, XModem out-of-band

### Switch Power

AC Input Power	FNS-PoE-24: 100-240 VAC, 50/60 Hz, 4.6-2.1 A FNS-SFP-24: 100-240 VAC, 50/60 Hz, 1 A
DC Input Power	FNS-SFP-24: -48 – -60 VDC, 3.0 A
Power Consumption	FNS-PoE-24: 460 W maximum FNS-SFP-24: 60 W maximum
PoE Power Budget	370 W
Port PoE Budget	802.3af: 15.4 W 802.3at: 30 W

### Standards

PoE	IEEE 802.3af-2003 IEEE 802.3at-2009
Ethernet	IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-TX IEEE 802.3z 1000BASE-SX/LX IEEE 802.3ab 1000BASE-T IEEE 802.3ae 10GBASE-SR/LR
Other	IEEE 802.3x Flow Control IEEE 802.3ac VLAN Tagging IEEE 802.ad Link Aggregation IEEE 802.1p Priority IEEE 802.1D (Bridging), 1993 IEEE 802.1Q (Virtual LAN) 1998 IEEE 802.1w Rapid Spanning Tree

### Regulatory Compliances

Emissions	EN 55022:2010, Class A EN 61000-3-2:2009, Class A EN 61000-3-3:2008 FCC Class A CE Mark
Immunity	EN 55024:2010 IEC 61000-4-2/3/4/5/6/8/11
Safety	UL (CSA 22.2 No 60950-1 & UL60950-1) CB (IEC 60950-1/EN 60950-1)