Installation and User's Guide

ACEswitch™ 110
Gigabit Ethernet Server Switch

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Regulatory Compliance

FCC Class A Notice: 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. 2. This device must accept any interference received, including interference that may cause undesired operation.

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.

Do not make mechanical or electrical modifications to the equipment.

VCCI Class 1: The equipment is Type 1 Data Processing Equipment and is intended for use in commercial and industrial districts. It has been tested and found to comply with VCCI technical requirements for the purpose of protection against electronic interference. When used in residential districts or their peripheral areas, radio, and TV receiver units may be subject to radio interference. The operation should be done in accordance with the Instruction Manual.

CE Notice: The CE mark on this equipment indicates that this equipment meets or exceeds the following technical standards: EN50082-1, EN55022, EN60555-2, EN61000-4-1, EN61000-4-2, EN61000-4-3, EN61000-4-4, and EN61000-4-5.

Safety Information

Caution—Product Contains a Lithium Battery. Batteries are not customer replaceable parts. They may explode if mishandled. Do not dispose of the battery in fire. Do not disassemble or recharge.

Caution—Alteon Networks products are designed to work with single-phase power systems having a grounded neutral conductor. To reduce the risk of electric shock, do not plug Alteon Networks products 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.

Caution—Not all power cords have the same ratings. Household extension cords do not have overload protection and are not meant for use with computer systems. Do not use household extension cords with your Alteon Networks product.

Caution—Your Alteon Networks product is shipped with a grounding type (three-wire) power cord. To reduce the risk of electric shock, always plug the cord into a grounded power outlet.

Caution—The ACEswitch 110 uses a 3A/250V fuse. For continued protection against the risk to fire, replace only with the same type and rating fuse.

Attention—Utiliser un fusible de rechange de meme type.

Achtung—Alteon Networks-Produkte sind für den Betrieb an Einphasen-Stromnetzen mit geerdetem Nulleiter vorgesehen. Um die Stromschlaggefahr zu reduzieren, schließen Sie Alteon Networks-Produkte nicht an andere Stromquellen an. Ihr Betriebsleiter oder ein qualifizierter Elektriker kann Ihnen die Daten zur Stromversorgung in Ihrem Gebäude geben.

Achtung—Nicht alle Netzkabel haben die gleichen Nennwerte. Herkömmliche, im Haushalt verwendete Verlängerungskabel besitzen keinen Überlastungsschutz und sind daher für Computersysteme nicht geeignet.

Achtung—Ihr Alteon Networks-Gerät wird mit einem dreiadrigen Netzkabel für geerdete Netzsteckdosen geliefert. Um die Gefahr eines Stromschlags zu reduzieren, schließen Sie das Kabel nur an eine fachgerecht verlegte, geerdete Steckdose an.

Lithiumbatterie—Diese Batterie darf nur von einem qualifizierten Servicetechniker ausgewechselt werden, da sie bei falscher Handhabung explodieren kann. Werfen Sie die Batterie nicht ins Feuer. Versuchen Sie auf keinen Fall, die Batterie auszubauen oder wiederaufzuladen.

Nordic Lithium Battery Cautions

Norge   A D V A R S E L—Litiumbatteri - Eksplosjonsfare. Ved utskifting benyttes kun batteri som anbefalt av apparatfabrikanten. Brukt batteri returneres apparatleverandøren.

Sverige   VARNING—Explosionsfara vid felaktigt batteribyte. Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren. Kassera använt batteri enligt fabrikantens instruktion.

Danmark   ADVARSEL! Litiumbatteri - Eksplosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Levér det brugte batteri tilbage til leverandøren.

Suomi   VAROITUS—Paristo voi räjähtää, jos se on virheellisesti asennettu. Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

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Preface

The *ACEswitch 110 Hardware Installation Guide* describes the features and installation process of the AceSwitch 110 Gigabit Ethernet switch.

For full documentation on configuring and using the switch's many software features (such as server load balancing and VLAN support), see the *ACEswitch Software User's Guide.*

Who Should Use This Book

The *ACEswitch 110 Hardware Installation Guide* is intended for network installers and system administrators engaged in configuring and maintaining a Gigabit Ethernet network. It assumes that you are familiar with Ethernet concepts, IP addressing, the IEEE 802.1d Spanning-Tree Protocol, and SNMP configuration parameters.

How This Book Is Organized

Chapter 1, "Preparing for Installation," provides a brief overview of the ACEswitch, including a description of switch features, ports, and LEDs.

Chapter 2, "Installing the Switch," describes how to install the switch, and how to connect a redundant power supply.

Chapter 3, "Testing the Switch," describes how to connect a terminal for viewing system messages, and provides suggestions for troubleshooting.

Appendix A, "Specifications," describes the physical specifications and characteristics of the ACEswitch 110.

Contacting Alteon Networks

Use the following information to access Alteon Networks online, customer support, or sales.

■   Web access: `www.alteon.com`

This is the URL of Alteon Networks Online Information. This website includes product information, software updates, release notes, and white papers. The website also includes access to Alteon Networks Customer Support for accounts under warranty or that are covered by a maintenance contract.

■   Email access: `support@alteon.com`

Email access to Alteon Networks Customer Support is available to accounts that are under warranty or covered by a maintenance contract.

■   Telephone access to Alteon Networks Customer Support: 1-888-Alteon0

Telephone access to Alteon Networks Customer Support is available to accounts that are under warranty or covered by a maintenance contract. Normal business hours are 8 a.m. to 6 p.m. PST.

■   Telephone access to Alteon Networks Sales: 1-888-Alteon2, press 2 for Sales.

Telephone access is available for information regarding product sales and upgrades.

Preparing for Installation

The ACEswitch 110 Gigabit Ethernet Server Switch attaches to the network backbone and interconnect servers using 10 Mbps, 100 Mbps, and 1,000 Mbps Ethernet connections. This flexibility offloads server-to-server traffic from the backbone, frees backbone bandwidth, and accelerates client-server performance.

This chapter lists the operational and physical features of the ACEswitch 110.

Features

The ACEswitch 110 offers the following features:

■ Two full-duplex Gigabit Ethernet ports

■ Eight half-duplex or full-duplex 10/100Mbps Ethernet ports

■ Concurrent Layer-2 and Layer-4 switching

■ Configuration and management is performed via a local console port (DCE) or Telnet, with two levels of password protection

■ Command line interface setup facility reduces the initial setup time

■ Optional Layer 4 switching software provides up to 256 Virtual Servers load balanced between 256 real servers

■ Optional Layer 4 web cache redirection software allows the redirection of client HTTP requests to up to 256 cache servers

■ VLAN support for up to 64 VLANs per switch

■ Jumbo frame support for frame sizes up to 9022 octets

■ Server dual homing support

■ Switching Processor (SP) capability to learn up to 4095 MAC addresses

■ Master Forwarding Database supports up to 8192 MAC address entries per switch

■ IEEE 802.1d Spanning-Tree Protocol support

■ IEEE 802.3x Flow Control support for full-duplex ports

■ IEEE 802.3z Link-Negotiation support

- IEEE 802.1Q Frame Tagging on all ports when VLANs are enabled
- SNMP support: RFC 1213 MIB-II, RFC 1493 Bridge MIB, RFC 1398 Ethernet-like MIB, and RFC 1573 Interface Extensions MIB compliant
- TFTP download to Flash memory for software updates and upgrades
- Redundant power supply (optional)

ACEswitch Physical Description

The following sections describe the ACEswitch 110 hardware.

Front Panel
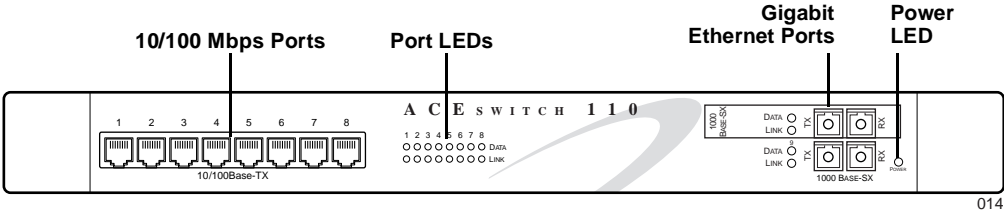
Figure 1-1 ACEswitch 110 Front Panel

The front panel of the ACEswitch 110 has eight RJ-45 ports for connecting 10/100 Mbps Ethernet segments. The ports are auto-negotiating and support half- or full-duplex operation. In addition, the switch has two SC-style ports for Gigabit Ethernet fiber connections.

The green Power LED lights when the ACEswitch is on and receiving proper power.

In the center of the front panel are two rows of LEDs. The top row is labeled "DATA" and has eight yellow lights (one for each 10/100 Mbps port). The bottom row is labeled "LINK" and has eight green lights (one for each 10/100 Mbps port). Each Gigabit Ethernet interface also has its own pair of "DATA" and "LINK" leds. Table 1-1 describes the LED states.

Table 1-1 Front Panel Port LEDs

LED	State	Description
DATA	Blinking	Data detected on the port.
	Off	No data detected on the port.
LINK	On	Good link.
	Off	No link; could be a result of a bad cable or bad connector.
	Blinking	Port has been disabled by software.

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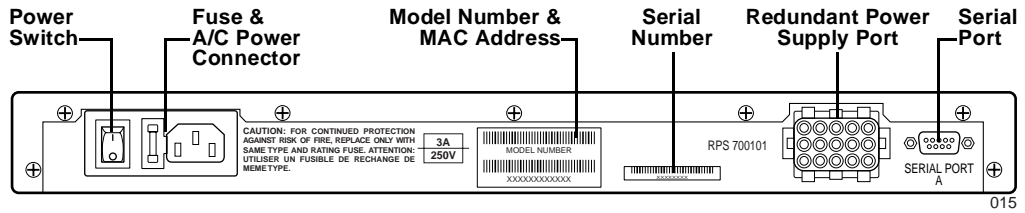
Rear Panel

Figure 1-2 ACEswitch 110 Rear Panel

The rear panel of the ACEswitch 110 has the following components (see Figure 1-2):

- A power switch
- A fuse housing
- An A/C power connector
- A redundant power supply port
- A female DB-9 serial connector labeled "SERIAL PORT A" for the console (DCE) connection

Planning a Network with the ACEswitch 110

The ACEswitch 110 includes a full suite of ACElerate server switching services in software. Some of the more significant software features are outlined below. For detailed information on configuring and using these software features, refer to the *ACEswitch Software User's Guide.*

VLANs

VLANs are commonly used to split up groups of network users into manageable broadcast domains, to create logical segmentation of workgroups, and to enforce security policies among logical segments.

The ACEswitch software (Release 2.0 or greater) supports up to 64 VLANs per switch.

The ACEswitch 110 software supports 802.1Q VLAN tagging to allow multiple VLANs per port, and to provide standards-based VLAN support for Ethernet systems.

See the *ACEswitch Software User's Guide* for implementation details.

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Spanning Tree

When Spanning Tree is enabled on the switch it detects and eliminates logical loops in a bridged or switched network. When multiple paths exist, Spanning Tree configures the network so that a switch uses only the most efficient path. If the path fails, Spanning Tree automatically sets up another active path on the network to sustain network operations.

Jumbo Frames

To reduce host frame processing overhead, the ACEswitch 110 and the ACEnic, both running operating software version 2.0 or greater, can be configured to receive and transmit frames that are larger than maximum frame size allowed on normal Ethernet.

Both the ACEswitch and the ACEnic support frame sizes up to 9022 octets, with jumbo frames being transmitted and received between ACEnic-enabled hosts through an ACEswitch across a VLAN configured to support Jumbo Frames. Additional VLANs can be configured on the same NICs and switches to support non-Jumbo Frame VLANs and to support other servers and end workstations that do not support extended frame sizes. End-stations with an ACEnics installed and attached to ACEswitches can communicate across both the Jumbo Frame VLANs and regular frame VLANs at the same time.

RFC 1573 Interface Extension MIB Compliance

With the creation of high speed LAN technologies such as Fast Ethernet and Gigabit Ethernet, counting frames and octets within the MIB-2 Interface tables became problematic. The 32-bit counters provided in the MIB-2 tables could roll over in a short period of time, providing data which was no longer statistically significant. The network administrator could no longer rely on the counters in these high speed environments because they could not know how many times the counters had rolled over.

The IETF sought to increase the capabilities of the interface statistical tables that was provided with MIB-2. Out of this effort came RFC 1573 - The IF Extensions MIB, allowing for higher speed networking environments, providing 64-bit counters on many statistics, plus roll-over counters for the 32-bit counters. The ACEswitch 110 now supports the RFC 1573 MIB in version 2.0 and greater of its operating software.

Server Dual Homing

Server switching networks allow the network designer to employ resiliency and redundancy similar to FDDI network environments. The combination of Alteon Networks ACEnic and ACEswitch provide the Ethernet user with this capability.

To support dual homing, you install two ACEnics in the same host system. These NICs are configured to provide a hot-standby failover service.

The ACEswitch 110 must be configured to support Spanning Tree on both Gigabit Ethernet ports to support the ACEnic dual homing capability.

Refer to the *Installation and User's Guide* for the ACEnic Gigabit Ethernet Adapter for more information about this feature.

802.3x Flow Control

802.3x flow control provides a mechanism for Ethernet end-stations or networking devices to signal a neighbor on a full-duplex link to pause the data transmission for a short period of time. Flow control provides rudimentary capabilities for allowing a device to temporarily suspend data reception so that it can handle any data already in queues.

The ACEswitch 110 supports 802.3x flow control on a per-port basis, on full duplex links. In its current implementation, the switch respects flow control signaling on the port where it is enabled, but cannot initiate it. If an upstream device that supports 802.3x flow control signals the ACEswitch 110, the switch will pause its data-stream for the allotted time as defined by the specification.

Port Mirroring

Port mirroring provides a powerful network debugging tool. When this feature is configured, network packets being sent and/or received on a target port are duplicated and sent to a monitor port. By attaching a network analyzer to the monitor port, you can collect detailed information about your network performance and usage.

Optional Layer 4 Switching Software

Layer 4 switching is an optional feature which can benefit your network in a number of ways:

■ Increased efficiency for server utilization and network bandwidth

With Server Load Balancing, the Alteon ACEswitch is aware of the shared services provided by your server pool. The switch can then spread user session traffic among the available servers. For even greater control, traffic is distributed according to a variety of user-selectable rules.

Web Cache Redirection further increases network efficiency by storing high-demand HTTP data on local servers.

By helping to eliminate server over-utilization and increasing network bandwidth, important session traffic gets through more easily, reducing user competition for connections on overworked servers.

■ Increased reliability of services to users

With Server Load Balancing, if any server in a service pool fails, the remaining servers continue to provide access to vital applications and data. The downed server can be brought back up transparently.

■ Increased scalability of services

Server Load Balancing lets you scale seamlessly. As users are added and the server pool's capabilities are saturated, new servers can be added to the pool without interrupting access to services.

Installing the Switch

This chapter tells you how to install the ACEswitch 110. It also describes the steps for connecting a redundant power supply and gives suggestions for troubleshooting.

The ACEswitch 110 is shipped with the following items:

- An A/C power cord
- Two mounting brackets (for rack or wall mounting)
- Four rubber feet (for tabletop placement of the switch)
- Six Phillips screws for installing the mounting brackets

Switch installation involves these tasks:

- Unpacking the switch
- Mounting the switch
- Connecting the switch to a redundant power supply (optional)
- Connecting the power cord and plugging it into a power outlet
- Connecting network cables to the switch
- Powering on the switch

Performing the Installation

Before installing the ACEswitch 110:

1. **Unpack the switch from the box.**

2. **Turn the power switch to the OFF (O) position.**

3. **Choose a suitable location to install the switch.**

CAUTION—Observe the following precautions when selecting a site and installing the switch:

The ambient temperature of an operating ACEswitch 110 must not exceed 40ºC. When installing the switch in a closed or multi-unit rack assembly, please consider that the operating ambient temperature of the switch may be higher than the ambient temperature of the room. Take any appropriate steps to ensure that the switch does not overheat.

For proper air circulation, the vents on the sides of the switch should not be blocked or obstructed by cables, panels, rack frames, or other materials.

Do not place or rack-mount the switch in any way which would exceed the maximum weight bearing capacity of the surface or rack, or which would cause potentially hazardous uneven mechanical loading.

Avoid overloading your electrical supply circuits. Electrical ratings are printed on the nameplates of all your equipment. Be sure that your supply circuits and wiring can support the rated power draw of whatever equipment is used.

Make sure the equipment is properly grounded electrically, and that power connections are safe, particularly when using power strips.

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Installing the ACEswitch 110

1. **Always observe the precautions outlined in the manuals for this and all other equipment you are installing (see above).**

2. **Determine where the unit will be mounted from the following options:**

   ■ To mount the unit into an equipment rack, connect the two mounting brackets to the switch using the supplied screws as shown in Figure 2-1, and install the switch as shown in Figure 2-2 using the appropriate screws for your rack-mount system (four 10-32, 12-24, M5X8-6H, or M6X1-6H type screws).
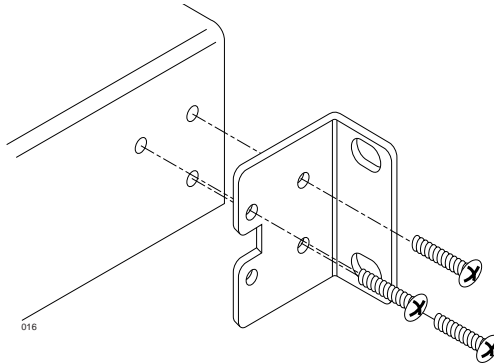
Figure 2-1 Position Mounting Brackets for Rack Mount
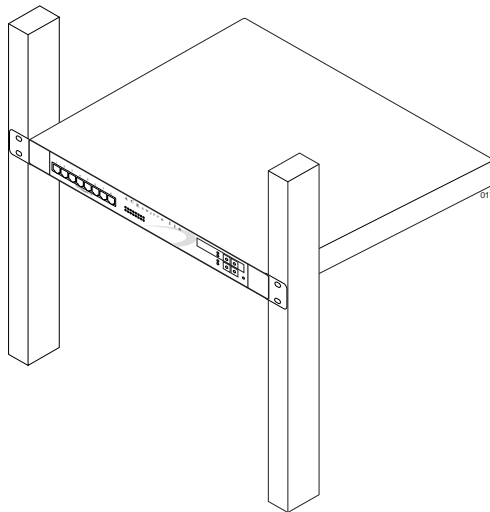
Figure 2-2 Rack Mounted ACEswitch 110

■ To mount the unit to a wall, first attach the mounting brackets as shown in Figure 2-3.
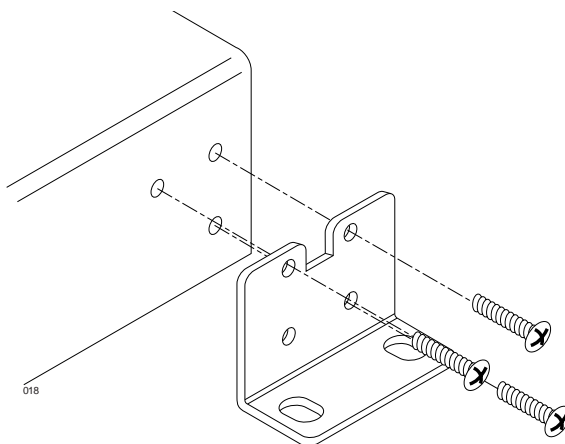
Figure 2-3 Positioning Brackets for Wall Mount

When the brackets are attached to the switch, mount the switch as shown in Figure 2-4.
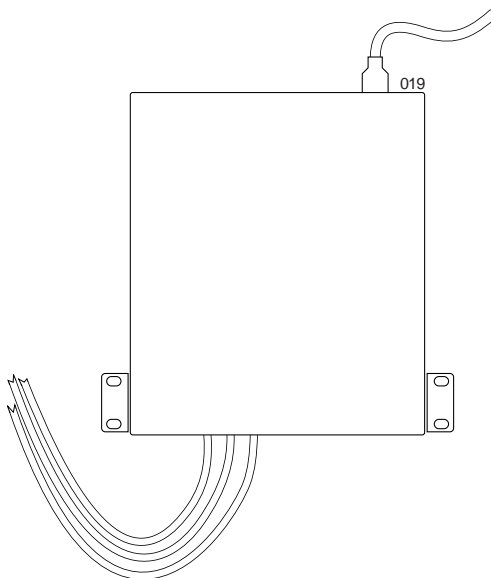
Figure 2-4 Wall Mounted ACEswitch 110

The ACEswitch should be mounted on plywood that has been previously secured to the wall in a safe manner and capable of supporting a weight of 30 pounds. The plywood should be sound and larger than the ACEswitch footprint. The plywood should have a minimum thickness of 3/4 inches (1.9 centimeters)

Secure the ACEswitch 110 to the plywood using four wood screws (not supplied). The wood screws should be steel with a minimum length of 5/8 inches (1.5 centimeters) and a maximum length of 7/8 inches (2.2 centimeters). The screw head diameter should be greater than the mounting holes and a minimum body of a #10 screw.

■ To place the unit on a tabletop, attach the four rubber feet to the bottom of the switch.

NOTE – Do not use the rubber feet for a rack or wall mount installation.

3. **If you are connecting the ACEswitch 110 to a redundant power supply, do this now.**

For more information, see "Connecting a Redundant Power Supply" on page 2-7.

4. **Connect the power cord to the ACEswitch 110, verify that the power switch is in the off position, and plug the cord into a properly fused socket.**

CAUTION—The switch uses a 3A/250V fuse. For continued protection against risk of fire, replace only with the same type and rating fuse. French: *Attention–Utiliser un fusible de rechange de meme type.*

5. **Power on (|) the switch.**

Connecting Cables to Network Ports

There are two types of port connectors: the RJ-45 jacks are used for connecting 10/100 Mbps Ethernet segments, and the SC jacks are used for connecting Gigabit Ethernet fiber segments.

All ports are auto-negotiating and support full-duplex operation. The 10/100 Mbps ports also support half-duplex operation. The port LEDs light to indicate various port connection conditions (see Table 1-1 on page 1-2).

Gigabit Ethernet via the SC Connector

Figure 2-5 illustrates an SC-type connector used for gigabit Ethernet connections on the ACEswitch 110. Table 2-1 lists the cable characteristics for connecting to 1000BASE-SX ports.
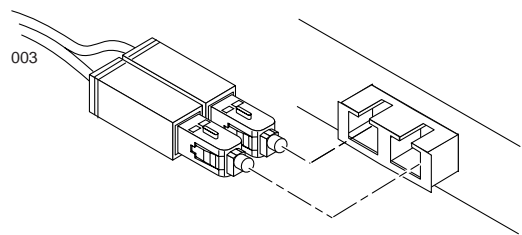
Figure 2-5 Fiber Connector for Alteon ACEswitch

Table 2-1 1000BASE-SX Link Characteristics

Description	62.5 Micron	50 Micron
	Shortwave (850 nm multimode fiber)	
Operating Range	2 to 260 meters	2 to 550 meters (in compliance with IEEE 802.3z Draft 4.0)

10/100 Mbps Ethernet via the RJ-45 Connectors

Use a straight-through cable on the 10/100 Mbps ports if the device attached to the port is a computer. If the device is a switch, hub, or router, use a crossover cable. See Figure 2-6 for cabling details. You can use a straight-through cable with a switch, hub, or router if it has an "uplink" enable/disable switch that you can set.

Straight-through cable		Crossover cable	
ACEswitch 10/100 Mbps Port	Computer Port	ACEswitch 10/100 Mbps Port	Hub, Switch, or Router Port
pin 1 ——— pin 1		pin 1 ——— pin 3	
pin 2 ——— pin 2		pin 2 ——— pin 6	
pin 3 ——— pin 3		pin 3 ——— pin 1	
pin 6 ——— pin 6		pin 6 ——— pin 2	

Figure 2-6 Pin assignments for 10/100 Mbps port cables

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Connecting a Redundant Power Supply

The redundant power supply (RPS) unit is a separate chassis from the ACEswitch 110. It provides backup power for up to three ACEswitch 110 Gigabit Ethernet switches.

CAUTION—Before connecting a redundant power supply, make sure the system power switch is in the OFF position. When the power is off, the lights on the front of the switch are not lit and the fan is not running. Failure to take this precaution may result in personal injury and system damage.

CAUTION—The ACEswitch 110 and the redundant power supply must both be connected to the same earth ground via their respective power cords. Generally, equipment mounted together in an equipment rack share an earth ground. Consult your facility manager if you are uncertain whether the outlets being used share an earth ground. Failure to use a shared earth ground could result in personal injury and serious damage to the equipment or power cables.

RPS Connection Procedure

1. **Turn off the power (O position) to all switches that will be connected to the redundant power supply.**

2. **Determine where the redundant power supply will be mounted.**

   For rack or wall mounting, install the mounting brackets, as described in "Performing the Installation" on page 2-2. For placement on a tabletop, connect the four rubber feet to the bottom of the unit.

3. **Mount the unit in the rack or on the wall, or place it on the tabletop.**

4. **Connect the A/C power cable to the unit.**

   Before plugging in the power cord, make sure that the power to the redundant power supply is in the OFF position.

5. **Connect each ACEswitch 110 to the redundant power supply port (Figure 2-7).**
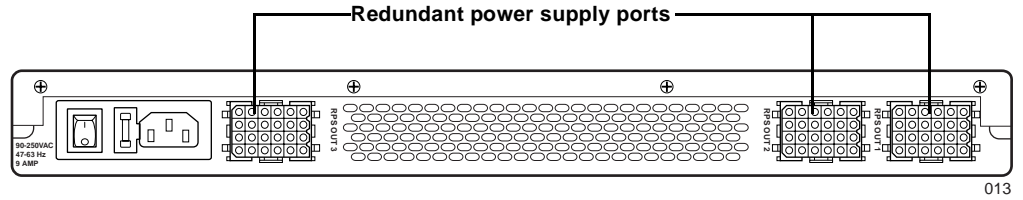
Figure 2-7 Redundant Power Supply Back Panel

NOTE – The connector on the ACEswitch 110 is labeled RPS 700101. Use only an Alteon Networks 300003 RPS cable to connect the RPS unit to the ACEswitch 110. Use the Class 1 wiring method for connections to the 700101 connector.

6. **Turn on the power to the redundant power supply.**

7. **Turn on the power to each switch.**

8. **Check the RPS LEDs for proper operation.**

The front panel of the power supply has three LEDs: one for each switch that can be connected. When the LED is lit, the indicated redundant power supply is operational (see Figure 2-8).

Figure 2-8 Redundant Power Supply Front Panel

Rack and Wall Mounting Instructions (German)

Zusätzliche Informationen

zur Anleitung für die Einbaurahmen- und Wandinstallation

Die folgenden Informationen sind Zusatzinformationen zu den Installationsanweisungen im Installations- und Benutzerhandbuch für den ACEswitch 110 von Alteon Networks. Bitte lesen Sie die folgenden erweiterten Anweisungen zur Einbaurahmen-Installation und zur Wandinstallation, und befolgen Sie sie.

Einbaurahmen-Installation

Zusätzlich zum eigentlichen Lieferumfang des ACEswitch 110 sind 4 Gewindeschrauben (US-Größe 10-32) zur Installation des Geräts in einem 19-Zoll-EIA-Einbaurahmen beigefügt.

Legen Sie fest, wo im Einbaurahmen das Gerät installiert werden soll. Hierbei ist auf folgendes zu achten: Der ACEswitch muß innerhalb des Einbaurahmens an einer Stelle installiert werden, an der eine Temperatur von 40 °C nicht überschritten wird. Die Ventilationsschlitze zu beiden Seiten des ACEswitch dürfen nicht verschlossen oder von Kabeln, Abdeckungen oder anderem blockiert werden. Anhand der auf dem Typenschild angegebenen Nennleistung ist zu überprüfen, ob das Gerät ohne Überlastung der Stromversorgung betrieben werden kann. Das Gerät muß ordnungsgemäß geerdet werden, und zwar entweder durch direkte Verbindung mit dem Versorgungsstromkreis oder über eine geeignete andere Verbindungseinrichtung zum Stromnetz (z.B. über eine normgerechte Mehrfachsteckdose).

Wenn eine geeignete Position innerhalb des Einbaurahmens gefunden ist, richten Sie die Gewindebohrungen der Befestigungshalterung an den Öffnungen des Einbaurahmens aus, und schrauben Sie die Befestigungshalterung mit den 4 Gewindeschrauben fest.

Wandinstallation

Legen Sie fest, wo an der Wand das Gerät installiert werden soll. Hierbei ist auf folgendes zu achten: Der ACEswitch muß an einer Stelle innerhalb des Raumes installiert werden, an der eine Temperatur von 40 °C nicht überschritten wird. Die Ventilationsschlitze zu beiden Seiten des ACEswitch dürfen nicht verschlossen oder von Kabeln, Abdeckungen oder anderem blockiert werden. Anhand der auf dem Typenschild angegebenen Nennleistung ist zu überprüfen, ob das Gerät ohne Überlastung der Stromversorgung betrieben werden kann. Das Gerät muß ordnungsgemäß geerdet werden, und zwar entweder durch direkte Verbindung mit dem

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Versorgungsstromkreis oder über eine geeignete andere Verbindungseinrichtung zum Strom-netz (z.B. über eine normgerechte Mehrfachsteckdose). Der ACEswitch sollte auf ein Sper-rholzbrett montiert werden, das zuvor sicher und fest an der Wand befestigt wurde und eine Tragkraft von 15 kg besitzt. Das Sperrholzbrett muß frei von Beschädigungen sein und größer als der Aufriß des ACEswitch. Die Mindeststärke des Sperrholzes ist 19 mm.

Befestigen Sie den ACEswitch mit 4 Holzschrauben (nicht mitgeliefert) auf dem Sperrholz. Bei der Auswahl der Holzschrauben ist folgendes zu berücksichtigen: Die Schrauben müssen aus Stahl gefertigt und zwischen 15 und 22 mm lang sein. Der Durchmesser des Schraubenko-pfes muß größer sein als der der für die Schrauben vorgesehenen Bohrungen, und der Schraubenschaft muß mindestens 5 mm stark sein.

Testing the Switch

The ACEswitch 110 has a console port which is used for receiving important system information and for configuring the switch. This chapter explains how to connect a terminal to the console port and collect system information. For instructions on using the console to view and configure switch settings, see the *ACEswitch Software User's Guide.*

Connecting a Terminal to the Switch

To establish a console (DCE) connection with the ACEswitch 110, the following is required:

■   An ASCII terminal or a computer running ASCII terminal emulation software set to the parameters shown in Table 3-1.

Table 3-1 Console Configuration Parameters

Parameter	Value
Baud Rate	9600
Data Bits	8
Parity	None
Stop Bits	1

■   A standard serial cable with a male DB9 connector (see Table 3-2).

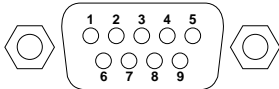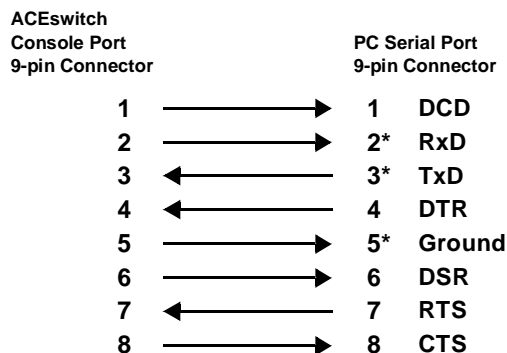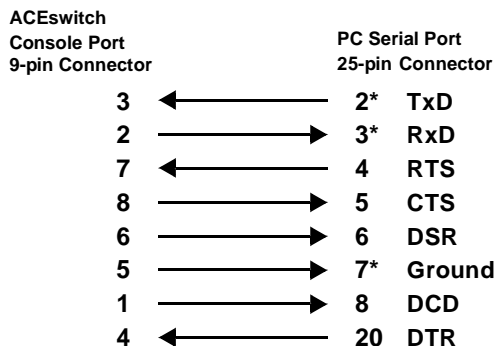**Table 3-2** Pinouts for DB9 Serial Connector

DB9 Serial Connector	Pin	Description
	1	DCD
	2	RxD
	3	TxD
	4	DTR
	5	Ground
	6	DSR
	7	RTS
	8	CTS
	9	Not used

Figure 3-1 and Figure 3-2 show the pin assignments for the console to use to configure serial cables to terminal connectors with 9-pin or 25-pin connectors.

ACEswitch
Console Port
9-pin Connector

PC Serial Port
9-pin Connector

ACEswitch		PC Serial Port
1	——▶	1 DCD
2	——▶	2* RxD
3	◀——	3* TxD
4	◀——	4 DTR
5	——▶	5* Ground
6	——▶	6 DSR
7	◀——	7 RTS
8	——▶	8 CTS

Note: Only the pins for RxD, TxD, and Ground are required.

Figure 3-1 9-pin to 9-pin Connector Pin Assignments

ACEswitch
Console Port
9-pin Connector

PC Serial Port
25-pin Connector

ACEswitch		PC Serial Port
3	◀——	2* TxD
2	——▶	3* RxD
7	◀——	4 RTS
8	——▶	5 CTS
6	——▶	6 DSR
5	——▶	7* Ground
1	——▶	8 DCD
4	◀——	20 DTR

Note: Only the pins for RxD, TxD, and Ground are required.

Figure 3-2 9-pin to 25-pin Connector Pin Assignments

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Establishing a Console Connection

1. **Connect the terminal to Serial Port A using the serial cable.**

2. **Power on the terminal.**

3. **To establish the connection, press <Enter> a few times on your terminal.**

4. **Enter the password when prompted.**

   The default administrator password is `admin`. Once your password is verified, the Main menu is displayed. See the *ACEswitch Software User's Guide* for detailed instructions on using the menus to configure the switch.

Troubleshooting

This section contains information about possible problems that may occur or error messages that might display if the switch is not properly installed or configured.

LINK LED Does Not Light

Symptom: The "LINK" LED (green) does not light. When you check the Link state using the console terminal (see the *ACEswitch Software User's Guide*), the status is reported as "down."

Cause: A port configuration mismatch between two devices or a cable problem.

- Port configuration mismatch. If the switch port is configured with a specific speed or duplex mode (for example, 100 Mbps, full duplex) check to see that the other device is set to the same configuration. If the switch port is configured to auto-negotiate, check to see that the other device is also set to auto-negotiate. Refer to the *ACEswitch Software User's Guide* for more information about setting speed and mode.

- Cable problem. Make sure you are using the correct type of cable to connect the switch to other devices. Refer to Figure 2-6 for information about crossover cables for connecting switches, hubs, or routers to the ACEswitch 110.

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Temperature Sensor Error Message

The following message is displayed on the console if the ACEswitch 110 temperature exceeds the temperature threshold. Immediate attention is required.

```
Temperature at sensor xxx exceeds threshold
Current temperature is xx °C    Threshold is xx°C
```

Actions:

- Make sure that the air circulation vents on the sides of the switch are free from obstruction by cables, panels, rack frames, or other materials.
- Make sure that all cooling fans inside the ACEswitch are running. The fans are located behind the ventilation grill at the side of the switch. The exhaust from all fans should be blowing outward with roughly equal air pressure (although it is normal for the exhausts to have different temperatures). You can also use a flashlight to check whether the fan blades are moving. If any fan stops during switch operation, contact customer support.
- Remember that units in a closed or multi-unit rack assembly may have an operating ambient temperature higher than the ambient temperature of the room. The ambient temperature of an operating ACEswitch 110 must not exceed 40ºC. If the operating ambient temperature cannot be lowered before this maximum is reached, turn off the switch and let it cool.
- It may be necessary to cool the room to a lower temperature or provide a fan for greater air circulation. Resolve the room's cooling and circulation problems before turning the switch back on.

Redundant Power Supply Error Message

The following message is displayed on the console if an RPS is not connected to the ACEswitch 110 or if an RPS is installed but is not supplying power to the switch.

```
RPS either not present or failed
```

Action: Make sure that the cable connectors are properly seated on the switch and on the RPS. Check that the RPS is connected to A/C and that the power switch is on.

Specifications

Supported Standards

- Spanning Tree Protocol (IEEE 802.1d)
- Logical Link Control (IEEE 802.2)
- 10Base-T/100Base-TX (IEEE 802.3, 802.3u)
- Flow Control (IEEE 802.3x)
- Link Negotiation (IEEE 802.3z)
- Frame Tagging (IEEE 802.1Q) on all ports when VLANs are enabled
- SNMP (RFC 1213 MIB-II, RFC 1493 Bridge MIB, RFC 1398 Ethernet-like MIB, RFC 1573 Interface Extensions MIB compliant)

Port Specifications

Port	Connector	Media	Maximum Distance
10Base-T	RJ-45	Cat. 3, 4, or 5 UTP	100 meters (325 feet)
100Base-TX	RJ-45	Cat. 5 UPT	100 meters (325 feet)
1000Base-SX	SC full-duplex	Shortwave (850 nm): 62.5 micron MM fiber 50 micron MM fiber	2 to 260 meters (6 to 850 feet) 2 to 550 meters (6 to 1780 feet)
Serial Port A (DCE)	Female DB-9	RS-232C (serial)	25 meters (80 feet)

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Physical Characteristics

Characteristic	Measurement
Width	43.81 cm (17.25 inches) (Standard 19" EIA rack mountable)
Height	4.45 cm (1.75 inches)
Depth	38.74 (15.25 inches)
Weight	2.7 kg (6 lb)

Power Requirements

Specification	Measurement
Auto-ranging power supply	100-240VAC @ 50-60 Hz, 3A
Maximum power consumption	80 Watts 3A @ +5VDC

Environmental Specifications

Condition	Operating Specification	Storage Specification
Temperature	0° to 40° C (+32° to +104° F)	–40° to +85° C (–40° to +185° F)
Relative humidity	5 to 85% non-condensing (40° C, 16 hour dwells at extremes)	5 to 95% non-condensing 10° C/hour
Altitude	up to 3,050 meters (10,000 feet)	up to 10,750 meters (35,000 feet)
Shock	10g, 1/2 sine wave, 11 msec	60g, 1/2 sine wave, 11 msec
Vibration, peak to peak displacement	0.005 in. max (5 to 32 Hz)	0.1 in. max (5 to 17 Hz)
Vibration, peak acceleration	0.25g (5 to 500 Hz) (Sweep Rate = 1 octave/minute)	0.25g (5 to 500 Hz) (Sweep Rate = 1 octave/minute)

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Certifications

Category	Compliance
Emmisions	FCC, CFR 47 Part 15, Subpart A ANSI C63.4D11.4 1991
	FCC OST 55
	VCCI Class 1
	CISPR 16, CISPR 22
	CSA C108.8-M1983 (R1989) EN55022
	CE
	EN6100-3-2, EN60555-2
Safety	UL 1950, CUL
	DIN/VDE 0805
	CSA 22.2, No. 950-93
	IEC 950
	EN 60950
	TUV EMKO-TSE (74-SEC) 207/94
	Nordic Deviations to EN 60950

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