INSTALLATION GUIDE

# A10 Thunder Series 930 ADC

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# Table of Contents

# Hardware Warnings, Cautions, and Requirements

Please carefully read all the following statements before beginning installation. (Note that some statements might not apply to your product.)

## Chassis Lifting and Placement

Lifting the chassis and placing it in the rails is a two-person job. If needed, use an appropriate lifting device.

## Chassis Installation

Installation must be performed only by a trained electrician or by a person who understands all the installation and device specifications, including electrical specifications, which are to be applied.

## Electrostatic Discharge

This device is sensitive to electrostatic discharge (ESD).

Wearing an ESD wrist strap while working on this device is required.

## Reliable Earthing

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, make sure earthing is maintained even if you use power strips.

- Before connections are made, all non-plated surfaces of the device must be brought to a bright finish and treated with an anti-oxidant solution; all bare grounding connection points to the device must be cleaned and coated with an anti-oxidant solution.
- All non-conductive surfaces on the device must be removed from all threads and connection points to ensure electrical continuity.
- The device must be grounded using a 10 AWG Copper wire. This wire should be Green with Yellow stripe and be terminated with a UL-listed single hole compression lug. The compression lug should be torqued to 15 ft. lbs during installation using a Nut and an External tooth washer to ensure the connection does not become loose.
- All bare grounding connection points to the device shall be cleaned and coated with an anti-oxidant solution before connections are made.

## Temperature and Air Flow

Installation of the chassis on a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

If you install the chassis on a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than the room ambient temperature. Therefore, consideration should be given to installing the chassis in an environment compatible with the maximum ambient temperature (Tma) specified for the device.

For the model covered by this document, the temperature and humidity settings are listed below:

- Operating temperature: 0 ~ 40° C
- Ambient operating humidity: 5% ~ 90%

## Preparing the Power Input

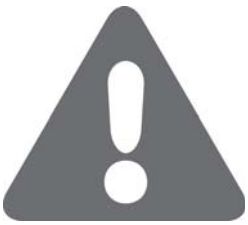
Observe the following:

- The DC Option Power return leads must be configured in the DC-Isolated (DC-I) configuration. The DC Return connection must remain isolated from ground until it is connected to the Central Office Power source return Bus.
- An external Surge Protective Device (SPD) is intended to be used at the AC input of the network equipment.
- The DC power input can operate normally on any DC input from -57.5 to - 40 VDC. Use at least a 20-amp fuse for each DC breaker.

## Preparing the Site

Observe the following:

- The device is designed for use in Network Telecommunications Facilities (Central Office) environment.
- The device is suitable for installation as part of a Common Bonding Network.



The intra-building port(s) of the equipment or subassembly is suitable for connection to intra-building or unexposed wiring or cabling only. The intra-building port(s) of the equipment or subassembly MUST NOT be metallically connected to interfaces that connect to the Outside Plant (OSP) or its wiring. These interfaces are designed for use as intra-building interfaces only (Type 2 or Type 4 ports as described in GR-1089-CORE, Issue 5) and require isolation from the exposed OSP cabling.

The addition of Primary Protectors is not sufficient protection in order to connect these interfaces metallically to OSP wiring.

## Additional Requirements

If applicable, this document specifies any additional equipment requirements such as special site preparation, restrictions on air conditioning, relative humidity control, or the choice of static dissipating materials for furniture or flooring.

# Getting Started

This guide describes how to physically install the A10 Thunder Series 930 ADC model, and how to configure the MGMT (management) interface for network access to the Command-Line Interface (CLI).

***FIGURE 1 Thunder 930 (Front Panel View)***


# Inspection

Inspect the box carefully ***before*** opening it. If the box is damaged, contact the shipper for instructions on filing a claim. Opening a damaged box before inspection by the shipper will void any potential shipping claims.

**CAUTION:** Do not attempt to install or operate damaged equipment. As with any electrical equipment, personal injury or damage to other equipment can result from commissioning damaged electrical equipment.

### Regulations

Follow all applicable regulations for installation of electrical equipment.

### Unpacking

Carefully unpack your ACOS device and included items from the box.

### Check the Contents

Confirm that the following items are included with the ACOS device:

- Cables: one AC power, two Cat-5E Ethernet, one Serial to RJ-45 console
- Hardware: rack-mount kit and sliding-rail kit

Specifications for the equipment rack are listed in Table 2.

Rack-mount installation instructions are available in "Rack Mount Kit Installation" on page 27.

Sliding rail installation instructions are available in "Sliding Rail Kit Installation" on page 31.

- Product documentation, CD (User Manuals, Release Notes, and so on)

### Other Requirements

Other equipment needed for installation:

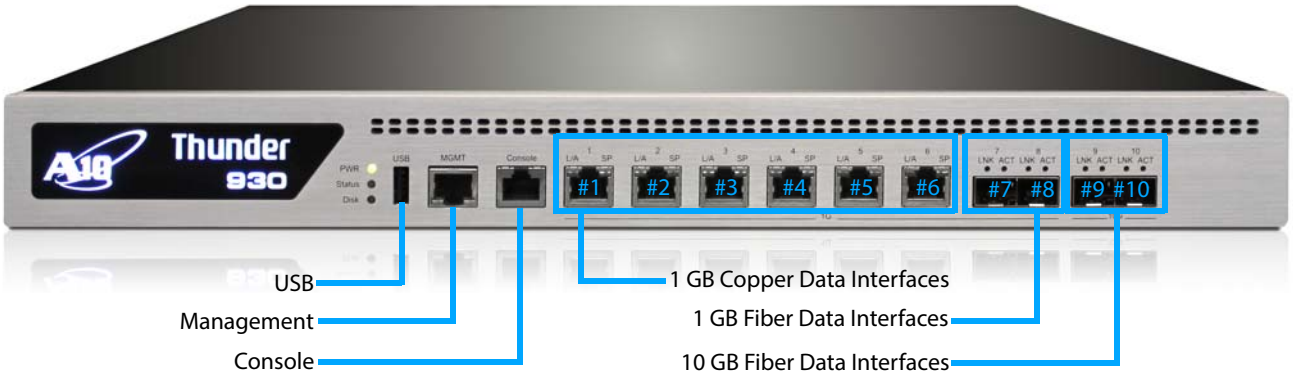
- Notebook or workstation PC (Windows, Linux, Mac)
  – Must have compatible Ethernet connectivity
- Supported Web browser
- Terminal Emulation Software (PuTTy, HyperTerminal, or similar)

# Interface Connections

The Thunder 930 model provides the following interfaces:

- Ethernet Data Interfaces
  - 6 x 1 Gb Copper data ports
  - 2 x 1 Gb Fiber data ports
  - 2 x 10 Gb Fiber data ports
- Management Interfaces
  - 1 serial console interface (Console)
  - 1 Ethernet interface (Mgmt) for remotely managing the device over the network

***FIGURE 2 Interface Locations and Numbers***




To begin using these interface connections:

1. Connect the serial cable to the serial console interface.
2. Connect Ethernet cables to the data interfaces you plan to use.
3. Optionally, connect an Ethernet cable to the MGMT interface.

# LED Locations and Status Indicators

The figures in this section provide close-up views of the interfaces and LEDs on your system.

***FIGURE 3 LED Locations***

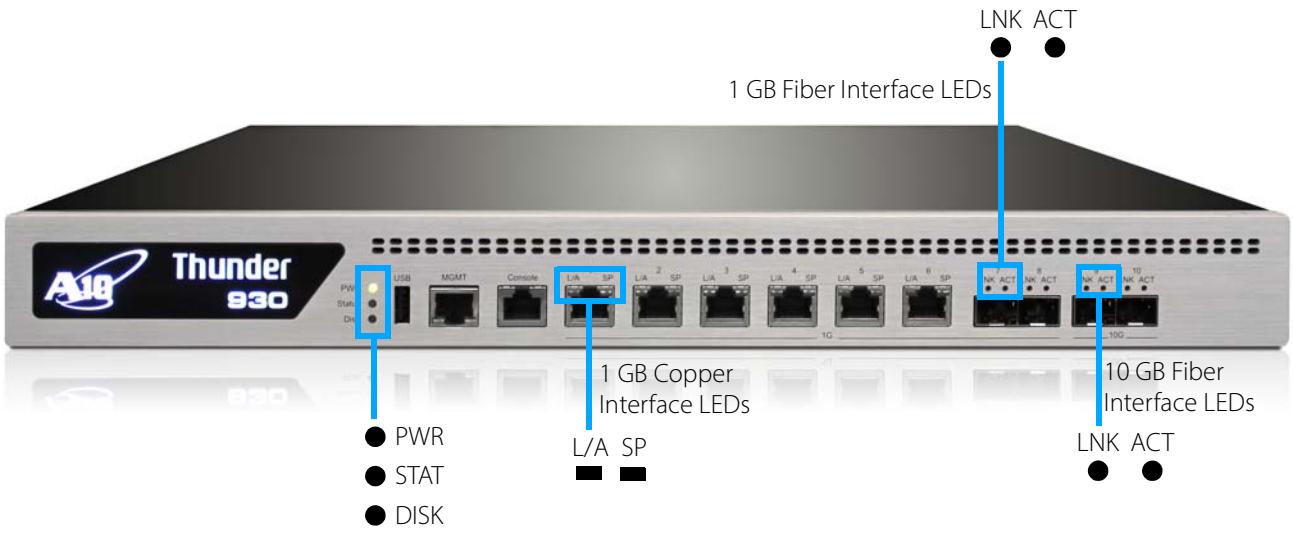


Table 1 describes the LED status indicators.

***TABLE 1 LED Status Indicators***

| LED | Color | | Status | Description |
|---|---|---|---|---|
| PWR | Green | | On | Power is switched ON |
| | | | Off | No power connected |
| STAT | Amber | | Flash | Post BIOS |
| | Green | | Flash | System under access |
| | | | Off | No power access |
| DISK | Amber | | On | SSD under access |
| | | | Off | No Data access |
| 10-Gb Ethernet Ports (Fiber) | LNK | Green | Off | Link down |
| | | | On | Link up |
| | ACT | Green | Off | Port is not sending or receiving traffic. |
| | | | Flash | Port is sending or receiving traffic. |
| 1-Gb Ethernet Ports (Fiber) | LNK | Green | Off | Link down |
| | | | On | Link up |
| | ACT | Green | Off | Port is not sending or receiving traffic. |
| | | | Flash | Port is sending or receiving traffic. |
| 1-Gb Ethernet Ports (Copper) | L/A | Green | Off | Link down |
| | | | On | Link up |
| | | | Flash | Port is sending or receiving traffic. |
| | SP | Off | Off | 10M |
| | | Green | On | 100M |
| | | Amber | On | 1G |

# Installation

Table 2 describes the minimum requirements for your equipment rack. Verify these specifications against your equipment prior to installing the chassis.

***TABLE 2 Equipment Rack Specifications and Part Numbers***

| Item | Rack Mount Kit | Sliding Rail Kit |
|---|---|---|
| Part Number | AXSK-RACK MOUNT-XX30 | AXSK-RAILKIT-XX30 |
| Item Description | 2 or 4-Post Rack Mount Kit | 4-Post Sliding Rail Kit |

| Item | Rack Mount Kit | Sliding Rail Kit |
|---|---|---|
| Supported Models | AX1030, AX3030, AX930<br>TH1030S, TH3030S, TH930 | AX1030, AX3030, AX930<br>TH1030S, TH3030S, TH930 |
| 2-Post Installation? | Yes | No |
| 4-Post Installation? | Yes | Yes |
| 4-Post Depth | 31 inches | 36 inches |
| Mounting Thread | No | No |
| Double 4-Post | Yes | Yes |
| Default Bundle | Yes | No |

Rack-mount installation instructions are available in "Rack Mount Kit Installation" on page 27.

Sliding rail installation instructions are available in "Sliding Rail Kit Installation" on page 31.

# Power-On

The device automatically boots when the power plug is connected to an electrical outlet. If the unit does not boot automatically, it can be manually booted by quickly flipping the power switch.

**NOTE:**

Power OFF – To perform a graceful shutdown, use the **shutdown** command in the CLI. If you made any changes to the device configuration, you will be prompted to save your configuration information before the device powers down.

Force Power OFF – If the system stops working and requires a forced shutdown, press and hold the power switch four seconds. Keep in mind that this forced shutdown will cause a loss of configuration information that has not be manually saved.

# Power Supply Unit Installation

This guide describes how to connect the power supply unit to an applicable AC or DC power source.

The following topics are covered:



**CAUTION:** Do not attempt to install or operate damaged equipment. As with any electrical equipment, personal injury or damage to other equipment can result from commissioning damaged electrical equipment.

**NOTE:** Follow all applicable regulations for installation of electrical equipment; for example, in the United States of America, the National Electrical Code.

# Overview

AC or DC power connections are made using a hot-swap power cable, which enables quick and easy installation of the power supplies without the need to disturb the AC or DC terminal blocks. AC or DC power is connected to each module separately.

Before extracting a power supply from the chassis, you must disconnect it from the power source. This is required regardless of whether the power supply is in standby mode or powered on mode. Likewise, when installing a power supply, insert the supply into the chassis first, before connecting the power supply to the power source.

- Insertion: Input and Output power are connected simultaneously, in either standby mode or powered on mode, when the power supply is inserted into the chassis.
- Extraction: Input and Output power are disconnected simultaneously, in either standby mode or powered on mode, when the power supply is extracted from the chassis.

No damage or arcing to Input or Output contacts occurs.

***FIGURE 4 Example of AC Power Supply***

***FIGURE 5 Example of DC Power Supply***

***FIGURE 6 Example of DC Power Supply (Assembled - Cable Inserted)***

# DC Power Supply Installation

Refer to the following instructions and figures for this procedure. (Also see figures on previous page.)

**NOTE:** Use at least a 20-amp fuse for each DC breaker.

1. Attach Green wire to ground.
2. Insert CD cable connector.
3. Attach **BLACK** -48 volt wire to -48 volt pin on DC power source.
4. Attach **RED** return wire to return pin on DC power source.

***FIGURE 7 Connecting the DC Power Supply Cable***

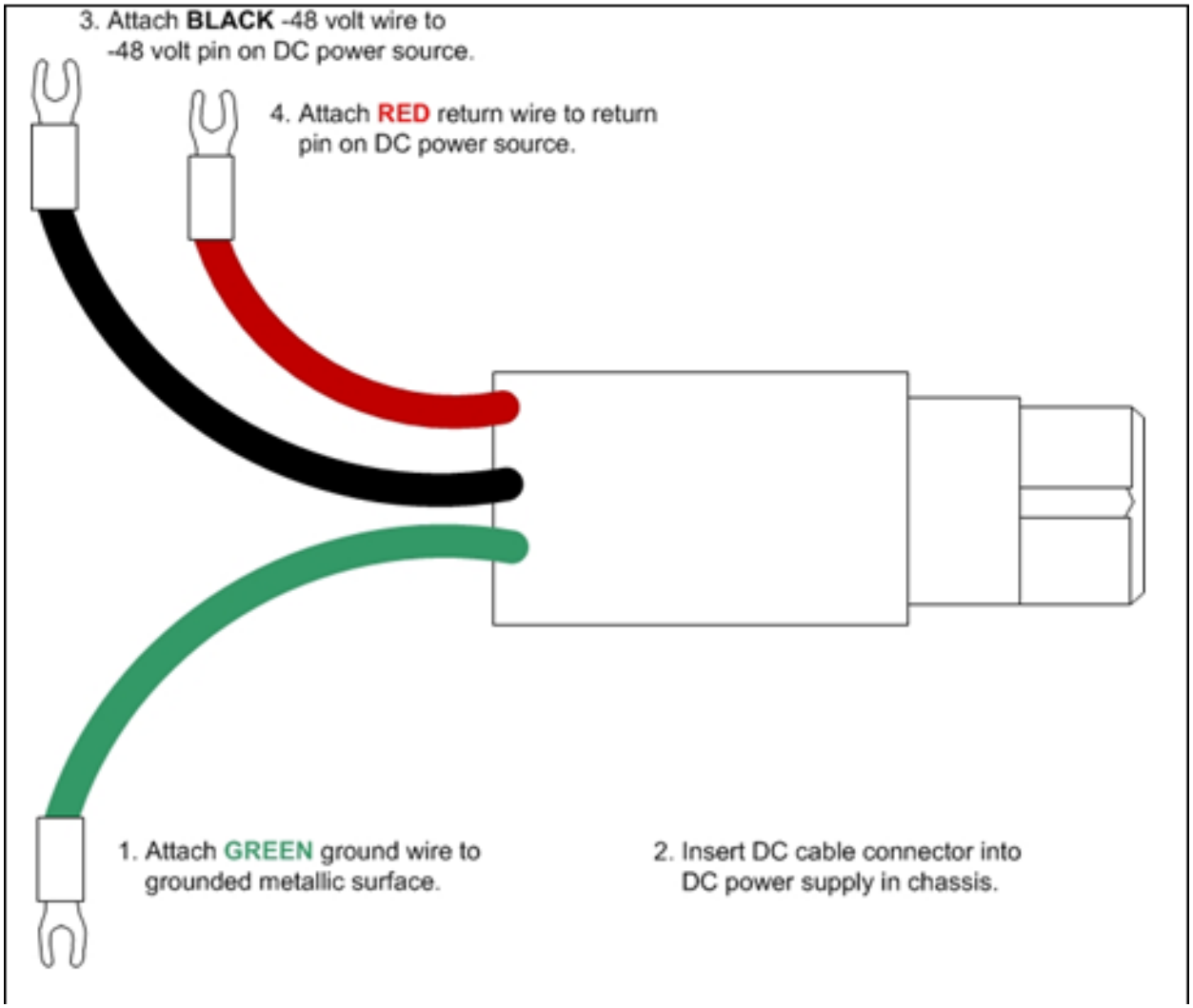
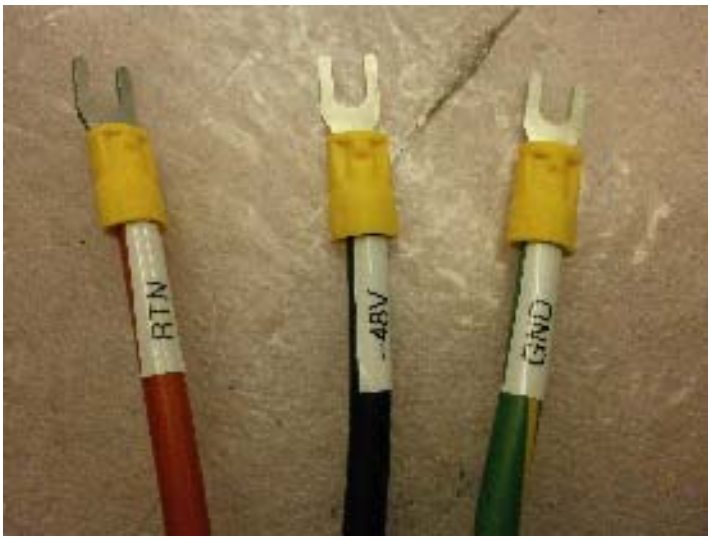


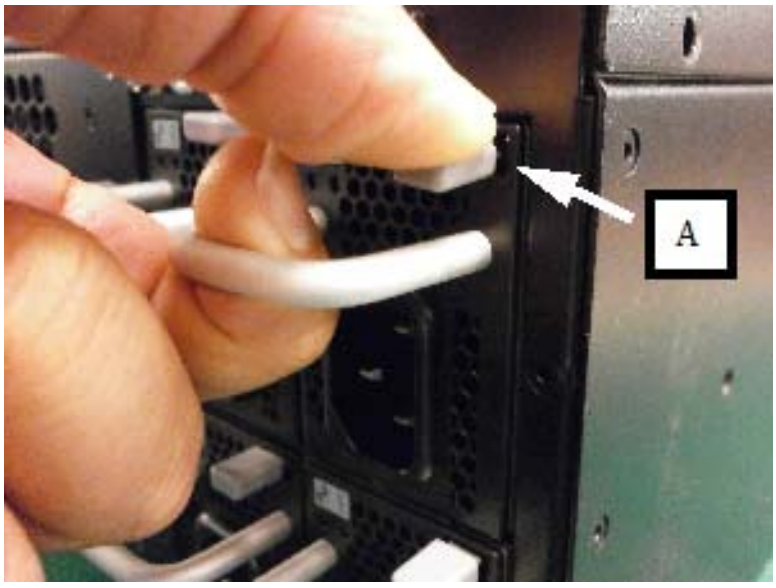
***FIGURE 8 DC Power Supply Cables***




# Power Supply Hot Swap

Follow the directions in the following sections to remove and insert a power supply unit.

***FIGURE 9 Power Supply Hot Swap***



# Removing a Power Supply

To remove a power supply:

1. Push and hold the panel to unlock the lock (A).
2. Hold the panel and pull out the power supply

# Inserting a Power Supply

To insert a power supply:

1. Push the power supply into the slot.
2. Plug the DC/AC power cable into the power supply.

# Initial Configuration

This chapter describes how to perform the initial configuration for a new ACOS device.

The following topics are covered:



**NOTE:** If you are planning to configure the new ACOS device by loading the configuration from another ACOS device, see "Configuring a New ACOS Device Using an Existing Configuration" on page 24.

# Management Interface Configuration

This section describes how to perform initial configuration on your ACOS device using the CLI, which is accessed using a console connection.

The following topics are covered:



To display a list of commands for a level of the CLI, enter a question mark ( **?** ) and press Enter. You can display the list separately for each level.

For syntax help, enter a command or keyword followed by a "space", then enter **?** then press Enter. This works for commands with sub-commands also.

# Connection via Console (Serial Port)

1. Using the included serial cable, connect the ACOS device to a computer with terminal emulation software.
2. Power on the computer and the ACOS device. Press the ON direction of the lower rocker switch.
3. Set the terminal emulation software for 9600 baud and 8-N-1 (8 bits - no parity - 1 stop bit). Once you are connected, the login prompt will display on the terminal.

# Login via CLI

1. Log into the ACOS device with the default username *admin* and the default password *a10*.

```
login as: admin
Welcome to ACOS
Using keyboard-interactive authentication.
Password:***
[type ? for help]
```

2. Enable the Privileged EXEC level by typing **enable** and pressing the Enter key. There is *no* default password to enter Privileged EXEC mode on new systems.

```
ACOS>en
Password:(just press Enter on a new system)
ACOS#
Enable the configuration mode by typing config and pressing Enter.
ACOS#config
ACOS(config)#
It is strongly suggested that a Privileged EXEC enable password be set up as follows:
ACOS(config)#enable-password new-password
```

# Configure the Management Interface

This section provides instructions for configuring the management interface.

**NOTE:** It is recommended to keep the management interface and the data interfaces in separate networks. Otherwise, some operations such as pinging may have unexpected results.

1. In the factory default configuration, the management interface has IP address 172.31.31.31/24.
2. You can use either a console connection or use another PC with an IP address in the same subnet (for example, 172.31.31.1/24), and connect the PC to the MGMT interface.
3. Configure the management interface IP address and default gateway.

**NOTE:** The management interface is an out-of-band interface; therefore, it should not be on the same subnet as any of the data interfaces.

In the example below, the IP address for the MGMT interface is 192.168.2.228. None of the data interfaces should have an IP address of 192.168.2.x.

```
ACOS(config)#interface management
ACOS(config-if:management)#ip address 192.168.2.228 /24
ACOS(config-if:management)#ip default-gateway 192.168.2.1
```

4. Verify the interface IP address change:

```
ACOS(config-if:management)#show interfaces management
GigabitEthernet 0 is up, line protocol is up.
Hardware is GigabitEthernet, Address is xxxx.yyyy.zzzz
Internet address is 192.168.2.228, Subnet mask is 255.255.255.0
...
```

5. Optionally, configure the ACOS device to use the management interface as the source interface for automated management traffic generated by the ACOS device:

```
ACOS(config-if:management)#ip control-apps-use-mgmt-port
ACOS(config-if:management)#exit
ACOS(config)#
```

**NOTE:** For more information, see the "Enabling Use of the Management Interface as the Source for Automated Management Traffic" chapter in the *System Configuration and Administration Guide*.

# Change the Admin Password

A10 Networks recommends that you change the admin password immediately for security.

```
ACOS(config)#admin admin password newpassword
ACOS(config-admin:admin)#
```

The ACOS device is now network accessible for configuration under the new IP address and admin password.

**NOTE:** By default, Telnet access is disabled on all interfaces, including the management interface. SSH, HTTP, HTTPS, and SNMP access are enabled by default on the management interface only, and disabled by default on all data interfaces.

## Save the Configuration Changes

Configuration changes made so far must be saved to the system memory to take effect when the system reboots. Otherwise, a power interruption (for example) could cause the system to be unavailable from the Web interface, in which case the console configuration would need to be repeated. Saving the configuration changes prevents this inconvenience. To write the current configuration to system memory:

```
ACOS(config)#write mem
Building configuration...
[OK]
```

# Configuring a New ACOS Device Using an Existing Configuration

If you are planning to configure the new ACOS device by loading the configuration from another ACOS device:

1. On the configured ACOS device, use the **copy** CLI command to save the startup-config to a remote server.
2. On the new ACOS device, copy the configured ACOS device's startup-config from the remote server onto the new ACOS device.
3. Reboot the new ACOS device.
4. Modify parameters as needed (such as IP addresses).

# Fan Hot Swap

This chapter provides fan hot swap instructions for the device.

To determine the fan tray that needs to be replaced, run the **show environment** command from the CLI.

The following topics are covered:



# Fan Module Location and Fan Numbers

The location of the fans is shown in Figure 10. When facing the back panel, the fans are numbered 1-4 from left to right.

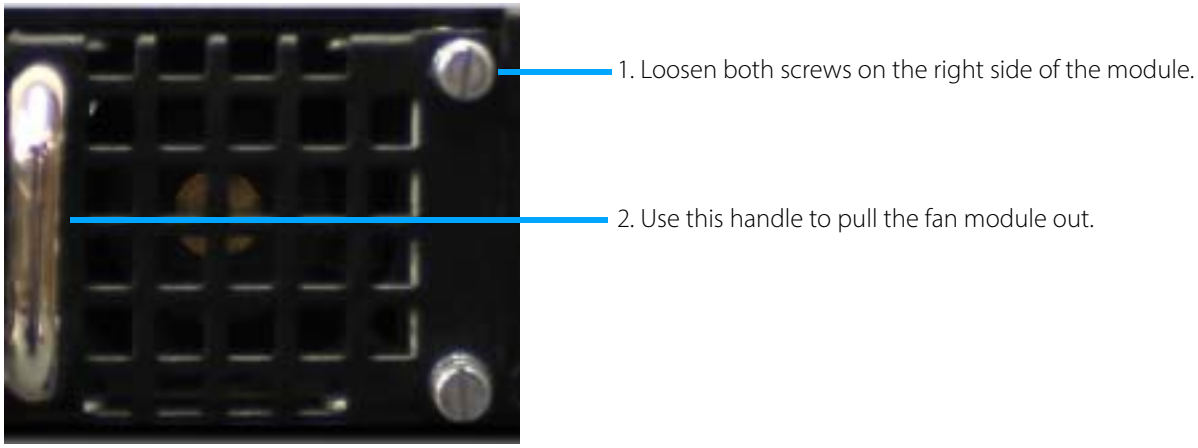
***FIGURE 10 Fan Module Location and Fan Numbers***


# Removing a Fan Module

Follow the steps below in order to remove a fan module (Figure 11).

1. Loosen the screws on the right side of the fan module you want to replace.
2. Holding the two loose screws, pull the fan module away from the chassis.

***FIGURE 11 Removing a Fan Module***




# Inserting a Fan Module

Follow the steps below in order to remove a fan module.

1. Gently push the fan module into the slot.
2. Tighten both screws to secure the fan module..

# Rack Mount Kit Installation

This chapter describes how to use the rack-mount kit to install your ACOS device into an equipment rack. The kit supports both front mounting or center mounting.



**NOTE:** The following devices are shipped with screws on the side of the chassis, to be used in conjunction with the new screwless sliding rail kit:

- A10 Thunder Series 5330(S)
- A10 Thunder Series 3430(S)
- A10 Thunder Series 3230(S)

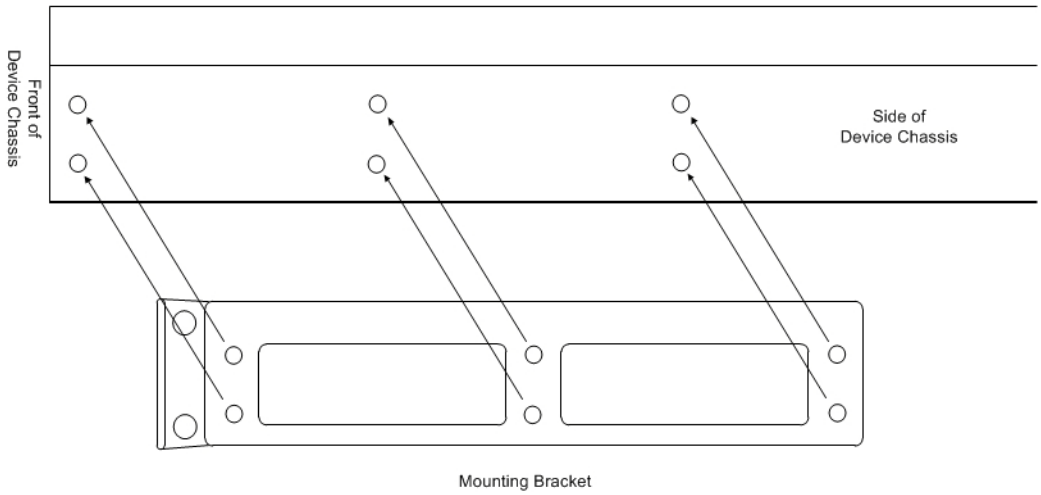
If you are installing the rack mount kit for any of these devices, you must first remove these pre-installed screws before continuing.

In addition, you must also remove the pre-installed smaller ear brackets used with the screwless rail kit in order to install the bracket needed for the rack mount kit.

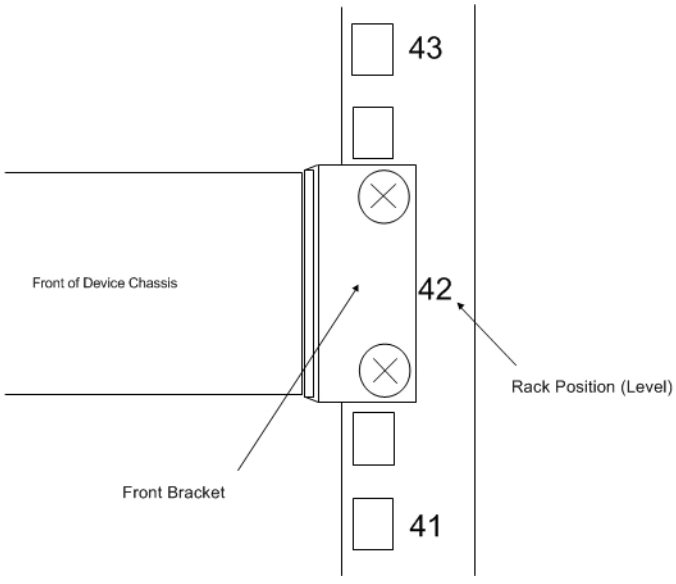
# Front Mount Installation

This section provides instructions for a front-mount installation.

1. Align a bracket over the 6 black 4-mm flat-head screws that will be used to attach the bracket to the chassis. Make sure to use the correct bracket. Each bracket fits on only one of the chassis sides.




2. Remove the screws.
3. Align the bracket over the screwholes and re-insert the screws. Make sure they are snug.
4. Repeat these steps to attach the other bracket.
5. Attach the device to the front of the rack. Make sure to fasten the brackets.

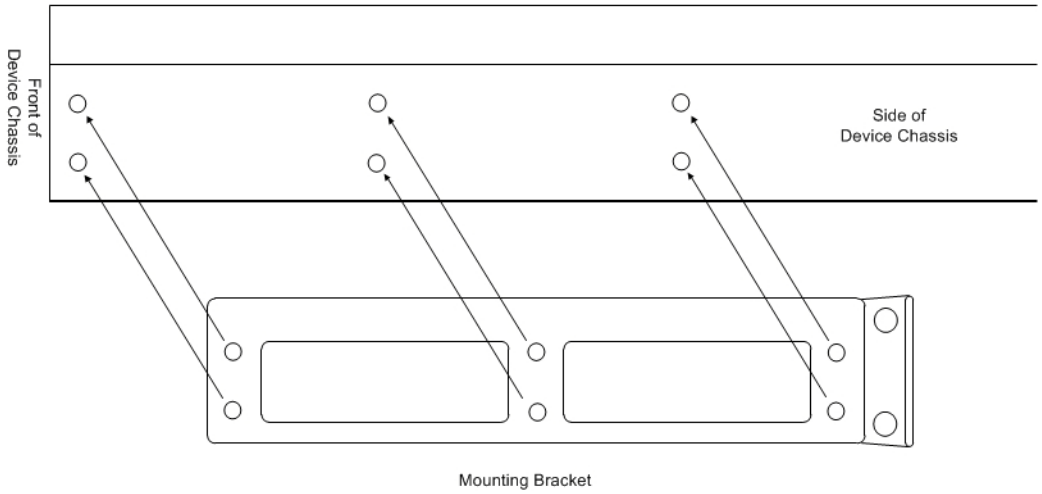



6. Check all the screws to verify that they are snug.

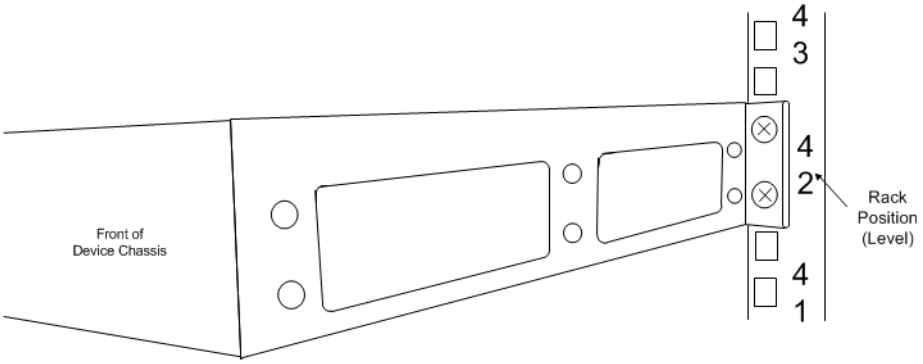
# Center Mount Installation

This section provides instructions for a center mount installation.

1. Align a bracket over the 6 black 4-mm flat-head screws that will be used to attach the bracket to the chassis. Make sure to use the correct bracket. Each bracket fits on only one of the chassis sides.




2. Remove the screws.
3. Align the bracket over the screwholes and re-insert the screws. Make sure they are snug.
4. Repeat these steps to attach the other bracket
5. Attach the Thunder device to the center post in the rack. Make sure to fasten the brackets.




6. Check all the screws to verify that they are snug.

# Sliding Rail Kit Installation

This chapter contains instructions for installing the sliding rail kit for your ACOS device.

The following topics are covered:



# Getting Started

This section contains the following topics:



## Rail Kit Contents

The rail kit contains the following items. Please verify that all parts are included and are not damaged.

- 2 x adjustable rail assemblies
- 12 x black 4-mm flat-head screws, for attaching the inner rails to the chassis
- 13 x silver M5-thread 7-mm flat-head screws with washers, for attaching the outer rails to the rack.

  12 are required and the 13$^{th}$ is a spare.

**NOTE:** Each rail assembly consists of an outer rail, a middle rail, and a removable inner rail.

## Required Tools

To install the rail kit, you will need the following tools:

- Anti-static wrist strap and conductive foam pad (recommended)
- #1 Phillips-head screwdriver
- #2 Phillips-head screwdriver
- Hex nut driver

# Sliding Rail Kit Installation

Installation consists of the following tasks:

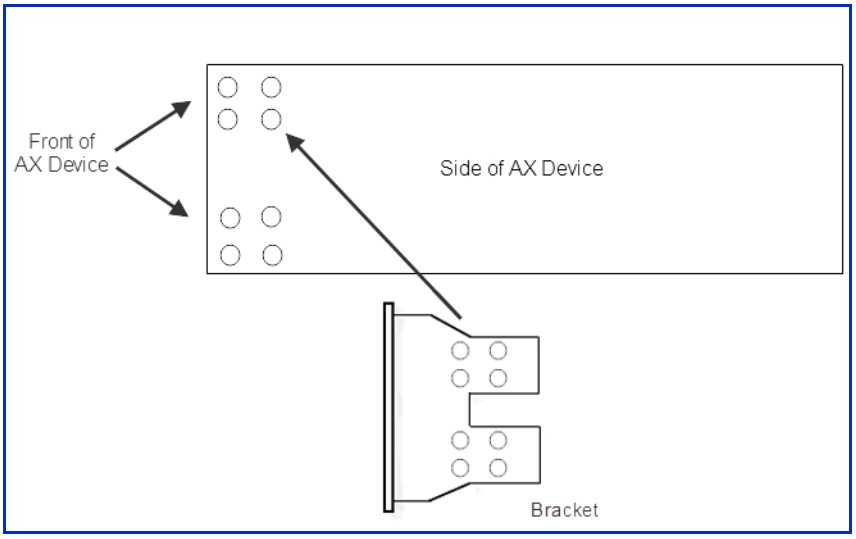
- Attach the Mounting Brackets
- Install the Inner Rails
- Attach the Outer Rails to the Rack Posts
- Install the Chassis on the Rails

## Attach the Mounting Brackets

This section describes how to install the mounting brackets. These brackets are intended to prevent the device from sliding out in the event of an earthquake or excessive vibration.

1. Attach the mounting brackets to the sides of the chassis, using the small silver screws included in the bracket kit. (The left bracket is shown below.

***FIGURE 12 Bracket Attachment***




**NOTE:** Example shows wide ear bracket. Narrow ear brackets also are provided in the kit. Please use the ears that best suit your rack and your preference.

2. After attaching both brackets, lift the chassis into place in the equipment rack.
3. While holding the chassis in place, use large screws to secure it to the rack.

# Install the Inner Rails

Perform the following steps for each inner rail.:

1. Remove the Inner Rails
2. Attach the Inner Rails to the Chassis

## Remove the Inner Rails

To remove the inner rails:

1. Fully extend the rail assembly until the middle and inner rails lock into place.
2. Release the inner rail by pressing the finger tab located near the middle rail in the direction of the arrow.

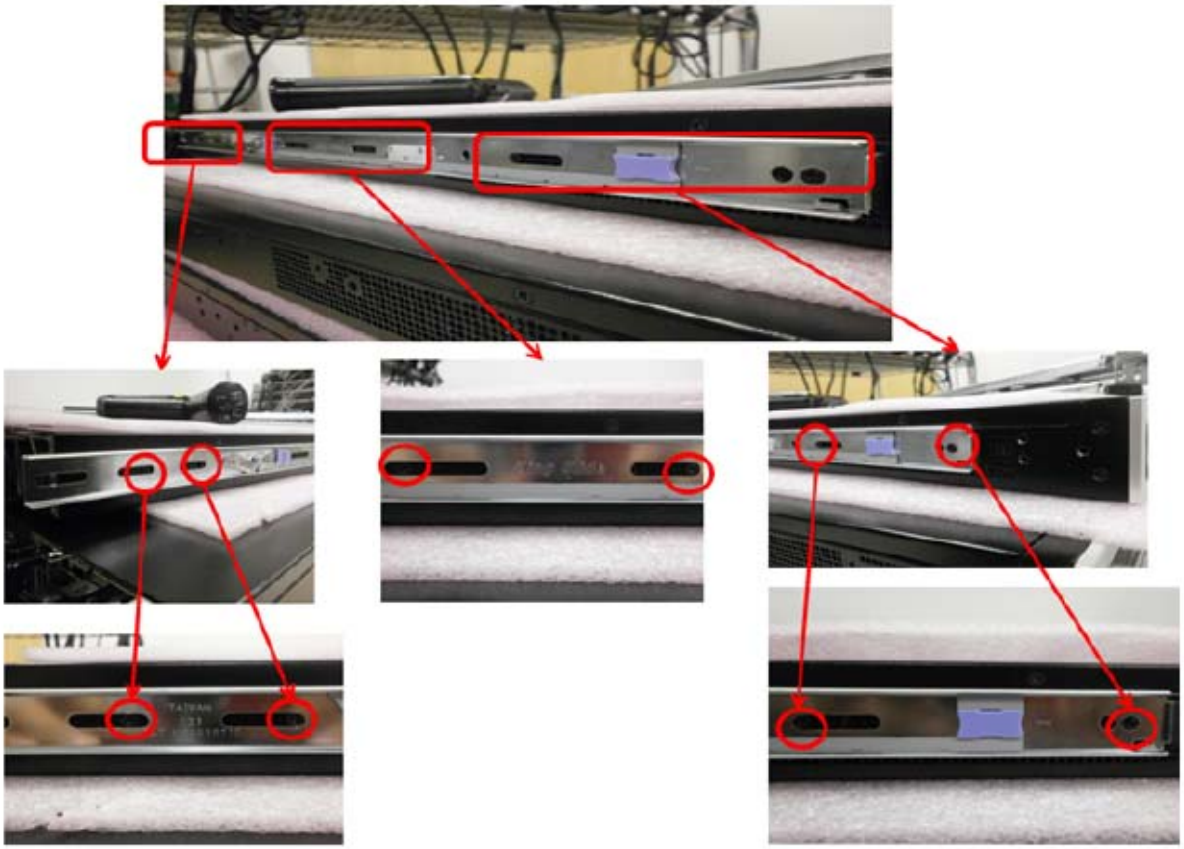
**NOTE:** The outer and middle rails cannot be separated.

## Attach the Inner Rails to the Chassis

To attach the inner rails to the chassis:

1. Align an inner rail along one side of the chassis. Make sure the release tabs face outward, away from the chassis. Also make sure the bend at the end of the inner rail is at the front of the chassis, not the rear.
2. Insert and fully tighten 4 black flat-head screws to fasten the inner rail to the chassis

3. Repeat for the other inner rail.



# Attach the Outer Rails to the Rack Posts

To attach the outer rails to the rack posts:

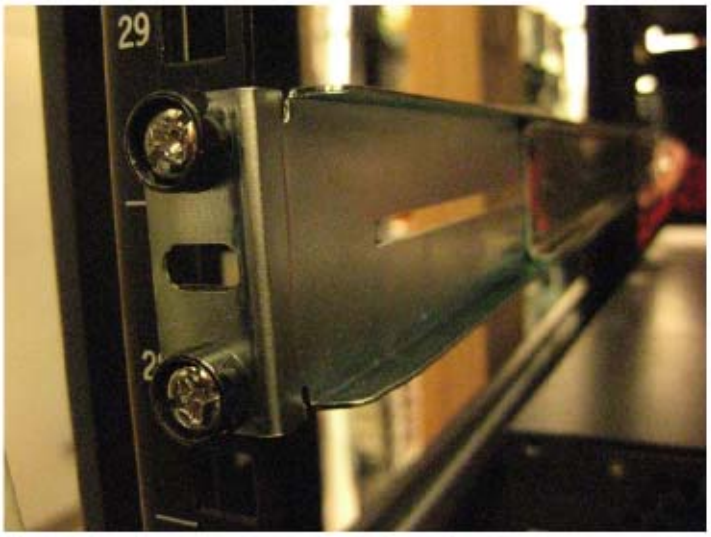
1. Align the top and bottom screw holes at the front of the middle rail assembly behind 2 screw holes in the front of the rack.

2. Insert 3 screws and partially tighten them. Optionally, you can use the silver flat-head screws and washers supplied with the rail kit.

**NOTE:** If you plan to use your own screws, please make sure they are not too long to fit into the rail.

**NOTE:** Do not completely tighten the screws yet. They need to be loose so you can adjust the bracket.

3. Extend the outer rail until it reaches the rear of the rack.
4. Insert 2 screws and firmly tighten them.




5. Tighten the two hex nuts on the outer rail to secure the rail at its extended length.
6. Finish tightening the front screws.

7. Repeat for the other outer rail.

# Install the Chassis on the Rails

To install the chassis on the rails:

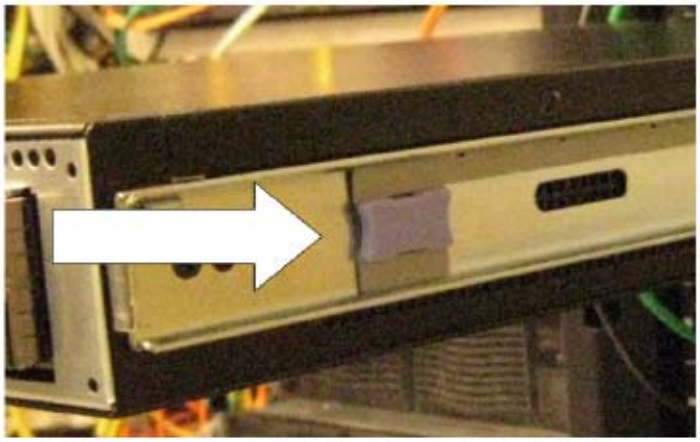
**CAUTION:** Lifting the chassis and placing it in the rails is a two-person job. If needed, use an appropriate lifting device.

1. Standing in front of the rack, fully extend the inner rails until the extension locks engage (if not already engaged). When the extension locks are engaged, the rails cannot be pushed back in. The rails are now ready for insertion of the chassis.

2. With the front of the chassis facing you, lift the chassis and carefully insert the inner rails attached to the chassis into the extended middle rails.

3. Slide the chassis toward the rear of the rack until the inner and middle rails lock together.

4. Press the finger tab located near the front of the chassis. You can push the tab in either direction. This unlocks the rails so you can slide the chassis into the rack.



5. Carefully slide the chassis all the way into the rack. The chassis is fully inserted when the chassis handles are against the front rack posts.

# Power Supply Product Specifications

The A10 Thunder Series 930 device is compatible with the power supply units described in this chapter:

- 600W AC Power Supply Specifications
- 1100W DC Power Supply Specifications

# 600W AC Power Supply Specifications

Table 3 lists the specifications for the AC power supply.

***TABLE 3 600W - AC Power Supply Specifications***

| Item | Specification |
|---|---|
| **Part Number** | ASK-PS-020 |
| **Chassis compatibility** | A10 Thunder Series 5430-11, 5330, 4430, 3230, 3430, 3030S, 1030S, 930 |
| **Power Supply Output** | 600W 80 Plus Platinum |
| **Warning Method** | Power Defective signal delivery warning to the Software. (TTL, Low active). |
| **LED indicators** | Green Output LED: On when the AC outputs are within the valid range and stable. |
| **AC Input Voltage Range** | 90 VAC ~ 264 VAC |
| **AC Input Current** | • Nominal input voltage: Min 100 VAC; Nom 230 VAC; Max 230 VAC<br>• Derated input voltage range: 90 VAC ~ 115 VAC<br>• Max input current: 13 Arms<br>• Input Frequency: Min 47 Hz; Nom 50/60 Hz; Max 64 Hz<br>• Turn-on input voltage: 80 VAC ~ 87 VAC<br>• Turn-off input voltage: 75 VAC ~ 85 VDC<br>• Inrush current: 40Ap maximum at any low/high range input voltage. |
| **Reliability and Availability** | Capable of online insertion and removal (OIR) |
| **Cooling Fan** | Integrated variable speed |
| **Environmental Conditions** | • Ambient temperature: 32°F to 131°F (0°C to 55°C)<br>• Extended temp range: +113°F to 149°F (+45°C to 65°C)<br>• Storage temperature: -4°F to 158°F (-20°C to 70°C)<br>• Altitude: At elevations greater than 6,000 feet, maximum ambient temperature is 113°F/45°C. |

# 1100W DC Power Supply Specifications

Table 4 lists the specifications for the DC power supply.

***TABLE 4 1100W - DC Power Supply Specifications***

| Item | Specifications |
|---|---|
| Part Number | ASK-PSDC-010 |
| Chassis compatibility | A10 Thunder Series 6630, 6435(S), 5630, 5435(S), 5430S, 5430-11, 6430(S), 5330, 4435(S), 4430, 3430, 3230, 3030S, 1030S, 930 |
| Power Supply Output | 1100W 80 Plus Platinum. |
| Warning Method | Power Defective signal delivery warning to the Software. (TTL, Low active). |
| LED indicators | Green Output LED: On when the AC outputs are within the valid range and stable. |
| DC Input Voltage Range | 40 VDC ~ 72 VDC.<br>Use at least a 20-amp fuse for each DC breaker. |
| DC Input Current | • Nominal input voltage: Nom 53 VDC.<br>• Max input current: 33 Arms.<br>• Input Frequency: Min 47 Hz; Nom 50/60 Hz; Max 64 Hz.<br>• Turn-on input voltage: Min 42 VDC; Max 45 VDC.<br>• Turn-off input voltage: Min 37 VDC; Max 40 VDC.<br>• Inrush current: 60Ap maximum at any low/high range input voltage. |
| Reliability and Availability | Capable of online insertion and removal (OIR). |
| Cooling Fan | Integrated variable speed. |
| Environmental Conditions | • Ambient temperature: 32°F to 131°F (0°C to 55°C).<br>• Extended temp range: +113°F to 149°F (+45°C to 65°C).<br>• Storage temperature: -4°F to 158°F (-20°C to 70°C).<br>• Altitude: At elevations greater than 6,000 feet, maximum ambient temperature is 113°F/45°C. |

# Additional Documentation and RMA Information

This chapter contains the following:



# Additional Documentation

Feature information is available for ACOS products in the following documents. These documents are included on the documentation CD shipped with your product, and also are available on the A10 Networks support site.

For feature information, see the following guides:

### Basic Setup

- *System Configuration and Administration Guide*

### Security Guides

- *Application Access Management Guide*
- *Web Application Firewall Guide*
- *Management Access Security Guide*

### Application Delivery Guides

- *Application Delivery and Server Load Balancing Guide*
- *Global Server Load Balancing Guide*

### References

- *LOM Reference*
- *CLI Reference*
- *aFleX Reference*
- *MIB Reference*
- *aXAPI Reference*

These documents mention specific models only where feature support differs among models. Otherwise, the feature descriptions apply to all models.

# Return Materials Authorization (RMA) and Customer Support

If you encounter any issues with your hardware and are unable to troubleshoot to a successful resolution, contact customer support using the information in this section. They will be able to assist you with return authorization and instructions.

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