Pillar Axiom® 500

Advanced Hardware Installation Guide
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CHAPTER 1

Before You Begin

Audience

This guide is for Data Center System Administrators and Professional Services Consultants who install Pillar Axiom storage systems that come with most components already installed in Pillar Data Systems racks. We assume that you understand how to:

• Assemble hardware components.
• Connect the components to the LAN and to power circuits.
• Use a graphical user interface (GUI) in a web browser.

This guide explains how to:

• Position and stabilize a populated rack in the data center.
• Create rack bays.
• Install hardware components.
• Connect the system to inlet power and to the networks.
• Turn on the system.
• Perform initial configuration.
• Add additional Slammers and Bricks.
## Contact Information

### Table 1 Contacts at Pillar Data Systems

<table>
<thead>
<tr>
<th>For help with…</th>
<th>Contact…</th>
</tr>
</thead>
<tbody>
<tr>
<td>Error messages, usage questions, and other support issues</td>
<td>US and Canada: 877-4PILLAR (1-877-474-5527)</td>
</tr>
<tr>
<td></td>
<td>Europe: +800 PILLAR FS (+800 74 44 27 37)</td>
</tr>
<tr>
<td></td>
<td>Asia Pacific: +1-408-518-4515</td>
</tr>
<tr>
<td></td>
<td>South Africa: +0 800 980 400</td>
</tr>
<tr>
<td></td>
<td>Have your system serial number ready.</td>
</tr>
<tr>
<td></td>
<td>Email <a href="mailto:support@pillardata.com">support@pillardata.com</a></td>
</tr>
<tr>
<td></td>
<td>Support portal: support.pillardata.com</td>
</tr>
<tr>
<td>Sales and general contact information</td>
<td><a href="http://www.pillardata.com/company/contact/">www.pillardata.com/company/contact/</a></td>
</tr>
<tr>
<td>Documentation improvements and resources</td>
<td><a href="mailto:docs@pillardata.com">docs@pillardata.com</a></td>
</tr>
<tr>
<td></td>
<td><a href="http://www.pillardata.com/techdocs/">www.pillardata.com/techdocs/</a> (log in with your username and password)</td>
</tr>
</tbody>
</table>
## Pillar Axiom System Components

The following Pillar Axiom 500 Series components are contained in Pillar Data Systems or non-Pillar Data Systems racks.

### Table 2 Pillar Axiom 500 Series components

<table>
<thead>
<tr>
<th>Product name</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bricks</td>
<td>• BRX 500-400A7—400 GB SATA disk drives, 4800 raw GB</td>
</tr>
<tr>
<td></td>
<td>• BRX 500-500A7—500 GB SATA disk drives, 6000 raw GB</td>
</tr>
<tr>
<td></td>
<td>• BRX 500-750A7—750 GB SATA disk drives, 9000 raw GB</td>
</tr>
<tr>
<td></td>
<td>• BRX 500-1000A7—1 TB SATA disk drives, 12000 raw GB</td>
</tr>
<tr>
<td></td>
<td>• BRX 500-73F15R—73 GB FC disk drives (RAID)</td>
</tr>
<tr>
<td></td>
<td>• BRX 500-73F15E—73 GB FC disk drives (Expansion)</td>
</tr>
<tr>
<td></td>
<td>• BRX 500-146F15R—146 GB FC disk drives (RAID)</td>
</tr>
<tr>
<td></td>
<td>• BRX 500-146F15E—146 GB FC disk drives (Expansion)</td>
</tr>
<tr>
<td></td>
<td>• BRX 500-300F15R—300 GB FC disk drives (RAID)</td>
</tr>
<tr>
<td></td>
<td>• BRX 500-300F15E—300 GB FC disk drives (Expansion)</td>
</tr>
<tr>
<td>Slammer (and batteries)</td>
<td>• SLM 500-GEC—NAS, copper interface</td>
</tr>
<tr>
<td></td>
<td>• SLM 500-GEO—NAS, optical interface</td>
</tr>
<tr>
<td></td>
<td>• SLM 500-SAN—SAN, 2 GB optical interface</td>
</tr>
<tr>
<td></td>
<td>• SLM 500-SAN-4G—SAN, 4 GB optical interface</td>
</tr>
<tr>
<td></td>
<td>• SLM500-GEC8—NAS, copper interface</td>
</tr>
<tr>
<td></td>
<td>• SLM500-GEO8—NAS optical interface</td>
</tr>
<tr>
<td>Pilot</td>
<td>• Pillar Axiom Pilot</td>
</tr>
<tr>
<td>Power distribution units (PDU)</td>
<td>• PDU 500-1P20A—115/230 V, 20 A, 1 φ</td>
</tr>
<tr>
<td></td>
<td>• PDU 500-1P30A—f 115/230 V, 30 A, 1 φ</td>
</tr>
<tr>
<td></td>
<td>• PDU 500-3P30A—f 208 V, 30 A, 3 φ</td>
</tr>
<tr>
<td></td>
<td>• PDU 500-3P16A—230/400 V, 16 A, 3 φ WYE</td>
</tr>
</tbody>
</table>

**Note:** The BRX 500-160A7 and BRX 500-250A7 are no longer available for new systems.
Customer-Supplied Materials

You need the following tools to install a Pillar Axiom system:

**Table 3 Required tools**

<table>
<thead>
<tr>
<th>Tool</th>
<th>Purpose</th>
<th>Illustration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4-in (7-mm) flat-tip screwdriver</td>
<td>Adjust leveling feet.</td>
<td></td>
</tr>
<tr>
<td>Adjustable wrench, 6 in (15 cm)</td>
<td>Adjust leveling feet.</td>
<td></td>
</tr>
<tr>
<td>#1 and #2 Phillips-head screwdrivers</td>
<td>Remove and secure Pillar Axiom hardware components.</td>
<td></td>
</tr>
<tr>
<td>Socket wrench with a 1/2-in (13 mm) socket</td>
<td>Connect two racks.</td>
<td></td>
</tr>
<tr>
<td>Offset box wrench, 13/32 in (10 mm)</td>
<td>Work with adjustable mounting rail assemblies.</td>
<td></td>
</tr>
<tr>
<td>Torx® T20 screwdriver</td>
<td>Attach rail assemblies to the vertical channels and secure hardware components to the rails.</td>
<td></td>
</tr>
<tr>
<td>Torx® T30 screwdriver</td>
<td>Connect two racks.</td>
<td></td>
</tr>
<tr>
<td>Wire cutters</td>
<td>Cut tie wraps.</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** These tools are not included with the Pillar Axiom system.
Safety Notice Conventions

Hazard signal words conform to the American National Standards Institute (ANSI) Z535.4-1998 meanings. This guide uses the following conventions for safety notices:

- **CAUTION** Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury.

- **Warning** Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.

- **DANGER** Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.

**Important!** To emphasize a point, to remind you of something, or to indicate potential problems in the outcome of the in-process task.

A set of important safety notices apply throughout this guide. Read them before working on a Pillar Axiom system. See Safety Statements.
Additional Documentation

Before you install the Pillar Axiom system, refer to the following resources that you completed with the assistance of your Pillar Data Systems representative:

- *Site Preparation Survey*
- *Storage Requirements Survey*

Use the following resources as you work with an Axiom storage system.

### Table 4 Additional resources

<table>
<thead>
<tr>
<th>For information on...</th>
<th>Refer to this document...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terms used within this document</td>
<td><em>Pillar Glossary</em></td>
</tr>
<tr>
<td>Pillar Axiom system hardware and software architecture</td>
<td><em>System Architecture Overview</em></td>
</tr>
<tr>
<td>How to configure, monitor, and administer a system</td>
<td><em>Administrator’s Guide</em></td>
</tr>
<tr>
<td>How to develop scripts or set up batch processes</td>
<td><em>CLI Reference Guide</em></td>
</tr>
<tr>
<td>How to replace or upgrade hardware components</td>
<td><em>Pillar Axiom Service Guide</em></td>
</tr>
</tbody>
</table>
About Component Inspection

Each Pillar Axiom storage system is built to a customer's specifications and shipped in a single shipment. Check the components you received against the packing slip (or bill of lading), which lists everything that was shipped. If any components are missing, call 1-877-4PILLAR (474-5527) and report what was not included in your shipment. Note how many pallets or containers you received, in case the missing components are in a container that simply has not yet arrived.

⚠️ CAUTION ⚠️
A Brick weighs up to 65 lb (29.5 kg). For safe handling, use two people to lift it.

⚠️ CAUTION ⚠️
A Slammer weighs 94 lb (42.6 kg). For safe handling, use two people to lift it.

⚠️ CAUTION ⚠️
Before you handle a component, make sure that you have taken electrostatic discharge precautions:

- The minimum requirement is an anti-static wrist strap connected to a hard ground. We recommend that you remove components from their packaging and place them on an ESD-qualified table equipped with ground points for wrist straps.

- Static charges can build up rapidly on rolling carts. If you transport a hardware component by cart, ground the cart with a drag chain on an ESD floor. If there is no ESD cart available or ESD floor, ground yourself before you touch a component that has been transported on a cart.

After you remove the components from their packaging, inspect them for any damage that may have occurred enroute. If there is any damage:

1. Check your Terms of Sale to see who notifies the carrier.
2. Notify the carrier or Pillar Data Systems, as appropriate, within 72 hours.
3. Record all damage.
4. Call Technical Support to open a service request for future insurance claims.
Tip: Check the packing materials to verify that you have retrieved all the small parts before recycling.

Important!

Pillar Axiom components are compatible with racks that are compliant to the EIA-310-D standard. Pillar Axiom Slammers and Bricks may not install successfully into a rack that is not EIA-310-D compliant.

Illustrations show a Pillar Axiom 42U rack or parts of it. If you have a non-Pillar rack, it should be similar.
Rack Position

The following figure illustrates a floor plan for new rack installations. The space around the rack (or bay, if you have multiple racks) is needed to perform the installation tasks safely.

Figure 1 Floor plan for rack installation

Legend

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Back of unit</td>
</tr>
<tr>
<td>2</td>
<td>60 in (152 cm)</td>
</tr>
<tr>
<td>3</td>
<td>96 in (244 cm)</td>
</tr>
<tr>
<td>4</td>
<td>36 in (91 cm)</td>
</tr>
<tr>
<td>5</td>
<td>139 in (353 cm)</td>
</tr>
</tbody>
</table>

About Multiple Rack Connections

If you are installing more than one rack, connect them together first. If you do not have multiple Pillar racks, skip to Adjust the Leveling Legs.

Prepare the Racks

To create a bay of Pillar racks, first remove the adjacent (inner) side panels from each rack and move the racks into position. You will route the cables directly from
one rack to the other through the open sides because the cables are not long enough to route through a raised floor.

Figure 2 Sample 42U side panels

Legend

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Side panel, one on each side</td>
</tr>
<tr>
<td>2</td>
<td>Latches</td>
</tr>
</tbody>
</table>

1 If locked, unlock the side panel using the supplied keys.

2 Unlatch the side panel by:
   • Pushing the release button, or
   • Lifting the release handle(s).

3 Remove the side panel and set it aside.

4 Position the racks so that their open sides abut and their front sides are flush.

Attach the Connection Bracket

The connection bracket provides extra rigidity to the bay.

Important! Make sure at least one of the racks is not anchored so you can adjust its position as you attach them together.
1 Locate the two adjacent frame corners at the top and rear of two racks to be connected.

**Figure 3 Location of frame corners**

<table>
<thead>
<tr>
<th>1</th>
<th>Front</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Top rear frame corner</td>
</tr>
<tr>
<td>3</td>
<td>Second rack</td>
</tr>
<tr>
<td>4</td>
<td>Threaded screw holes</td>
</tr>
<tr>
<td>5</td>
<td>Looking up into top rear frame corner, with a second rack moved close for attachment</td>
</tr>
</tbody>
</table>

2 Place the connection bracket into the frame corner.

3 Insert an M8 hex screw through the hole in one of the bracket corners.

4 Loosely screw the M8 screw into the threaded hole in the frame.
Figure 4 Connection bracket installation

Legend

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Frames</td>
</tr>
<tr>
<td>2</td>
<td>Baying connection bracket</td>
</tr>
<tr>
<td>3</td>
<td>M8 hex screws</td>
</tr>
</tbody>
</table>

5 Insert an M8 hex screw through one of the other corner holes in the bracket and loosely screw it into the threaded hole in the frame.

6 Repeat Step 5 for the other two corner holes.

**Note:** Tighten the screws after all the bay connections are in place.

**Attach the Baying Plates**

Baying plates bind two Pillar racks together at the roof and bottom of the rack.

**Tip:** Use the stabilizer plate described in Install a Stabilizer Plate in conjunction with the baying kit that comes with each rack.

1 At the front of each rack roof, use a T30 Torx® screwdriver to remove the two adjacent Torx-head screws and set them aside.

2 Place a baying plate over the two holes.
Figure 5 Roof baying plate attachment

Legend

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Roof baying plates</td>
</tr>
<tr>
<td>2</td>
<td>M12 Torx screws</td>
</tr>
</tbody>
</table>

3 Insert a Torx screw (from Step 1) into each plate hole.
4 Re-seat the Torx screws loosely.
5 Repeat Steps 1 through 4 for the two holes at the back of the roof.
6 At the bottom of the adjacent rack sides, remove the anti-tip brackets, if any, and unscrew the anchor bolts.
Figure 6 Adjacent anchor bolts at the front of the racks

Legend

1 Anchor bolts

7 Hold the baying plate across the two anchor-bolt holes and loosely replace the anchor bolts.

8 Repeat Steps 6 and 7 in the back of the racks.

9 Use the socket wrench to tighten the connection bracket screws.

10 Use the T30 Torx-head screwdriver to tighten the top baying plate screws.

11 Use the 3/4-in (19-mm) open-end wrench to tighten the bottom baying plate anchor bolts.

Adjust the Leveling Legs

Racks have built-in leveling legs at each corner. Adjust these legs so they are in firm contact with the floor and the rack is level. If the rack connects to others, adjust the legs so the racks are at the same height and can be bolted together.
1 Turn each leveling leg clockwise to lower the feet until they touch the floor. Use a 1/4-in (7-mm) flat-tip screwdriver in the slot at the top of the leg.

Figure 7 Rack leveling leg locations

Legend

1  Caster brackets
2  Leveling legs are preinstalled in each caster bracket.

2 Use a 3/4-in (19-mm) open-end wrench on the bottom of the legs to jack up the rack. Raise the rack until level with all the casters off the floor.

Figure 8 Leveling leg adjustment

Legend

1  Caster brackets
2  Slot in the leveling leg for a screwdriver

Note: If you connect racks in a bay it is more important that the racks be at the same height than level so that you can bolt them together.
About Rack Stability

After you move the rack to its final position and adjust the legs, you must stabilize it to keep it from shifting when you install the components.

You can use any combination of the following actions to stabilize the rack:

- Attach anti-tip brackets and secure them to the floor. Go to Install the Anti-Tip Brackets.
- Attach a stabilizer plate and secure it to the floor. Go to Install a Stabilizer Plate.
- Install a seismic stabilization system.

Important! If the rack will be part of a bay of racks, attach the rack to the bay before you install stabilizer plates or some other seismic stabilization system.

Install the Anti-Tip Brackets

1 Screw the anchor bolt into the bottom outside corner of the rack frame until the bolt is seated.

Figure 9 Attach anchor bolts to rack

2 Slide the bracket fingers into the anchor bolt pocket as illustrated in the following figure.
3 Position the anti-tip bracket so that it points away from the rack and is parallel to the sides.

4 Adjust the anchor bolt so that it is finger-tight against the anti-tip bracket, and secure the anti-tip bracket to the floor.

5 Repeat Step 1 through Step 4 for all four corners.
About Stabilizer Plate Installation

At the front of the rack, you can install an optional stabilizer plate instead of anti-tip brackets. Stabilizer plates provide greater stability than anti-tip brackets, which must be removed in order to install a stabilizer plate. You cannot use anti-tip brackets in a bay because the anchor bolts are used to hold the baying plates in place. Therefore you should use stabilizer plates for racks in a bay.

Also note that if you have removable floor panels, you must bolt the stabilizer plates through to the solid sub-floor.

Install a Stabilizer Plate

These are the steps for installing the optional stabilizer plate for the Pillar Axiom system.

1. Place the stabilizer plate at the front of the rack with the short side up.
2. Align the holes in the short side with the holes in the rack frame. Adjust the leveling legs to raise or lower the rack to align the plate and rack holes.
3. Insert an M8 bolt into each hole in the short side of the stabilizer plate.
4. Use the hex wrench to tightly bolt the stabilizer plate to the rack.
Figure 12 Stabilizer plate attached to the rack base and floor

Legend

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>M12 (or larger) floor bolts</td>
</tr>
<tr>
<td>2</td>
<td>M8 allen-head bolts</td>
</tr>
</tbody>
</table>

5 Secure the stabilizer plate to the floor with bolts and washers that are appropriate for the type of floor.

**Important!** The floor bolts must be no smaller than M12.
About Component Placement

For non-Pillar racks, all component rails must be installed before loading components into the racks.

Racks from Pillar Data Systems come with the component rails pre-installed. If you have Pillar racks, skip ahead to Install Components.

Install the component rails according to the component placement diagrams for your system configuration. Install them in the order of:

• Pilot rails near the bottom of the rack, 2U above the PDUs.
• Slammer rails above the Pilot rails.
• Brick rails above the Slammer rails.

CAUTION Some Pillar Axiom components weigh over 65 pounds (29.5 kg). Make sure all rail components are tightly secured before loading the components to prevent damage and injury.

If you are building a rack that only contains Bricks, you should still start from the bottom. Go to these topics for complete information on component placement:

• About Component Placement for One Slammer and SATA Bricks
• About Component Placement for One Slammer and FC Bricks
• About Component Placement for Two or Three Slammers and FC Bricks
• About Component Placement for 4 Slammers and 64 Bricks

About Component Placement for One Slammer and SATA Bricks

A Pillar Axiom system with one Slammer supports up to 32 SATA Bricks. Install the components in the rack as shown in the figure below. Any components that are not installed must be replaced with filler panels.

The figure below illustrates how the Pillar Axiom storage system components are mapped into fully loaded 42U racks for the following configuration:

• 1 Pilot
• 1 Slammer
• 32 SATA Bricks
**Note:** 2U of space is reserved above the PDUs for cable routing. The number and type of PDUs depends on the power supply. If more PDUs are needed, or when you need to add additional components into the rack (such as adding another Slammer), then everything has to move up to make room, keeping the 2U of reserved space, and moving any Bricks displaced at the top to the next rack.

**Figure 13 Fully loaded 42U racks for one Slammer and 32 SATA Bricks**

Legend

1. Reserved for PDU cable routing
2. RU locators

**Note:** Brick names are just for illustration; actual names, as seen in the AxiomONE Storage Services Manager, may be different.

**Note:** In a system that is configured for the maximum number of Bricks, connect the additional racks to the first rack before you install and cable the hardware components.

**About Component Placement for One Slammer and FC Bricks**

A Pillar Axiom system with one Slammer supports up to 16 FC Bricks. Install the components in the rack as shown in the figure below. Any components that are not installed must be replaced with filler panels.
The figure above illustrates how the Pillar Axiom storage system components are mapped into a fully loaded 42U rack for the following configuration:

- 1 Pilot
- 1 Slammer
- 16 FC Bricks

**Note:** 2U of space is reserved above the PDUs for cable routing. The number and type of PDUs depends on the power supply. If more PDUs are needed, or when you need to add additional components into the rack (such as adding another Slammer), then everything has to move up to make room, keeping the 2U of reserved space, and moving any Bricks displaced at the top to the next rack.
Note: Brick names are just for illustration; actual names, as seen in the AxiomONE Storage Services Manager, may be different.

For information on larger FC configurations, go to About Component Placement for Two or Three Slammers and FC Bricks and About Component Placement for 4 Slammers and 64 Bricks.

About Component Placement for Two or Three Slammers and FC Bricks

A Pillar Axiom system with two or three Slammers supports up to 32 FC Bricks. Install the components in the rack as shown in the figure below. Any components that are not installed must be replaced with filler panels.

The figure below illustrates how the Pillar Axiom storage system components are mapped into fully loaded 42U racks for a configuration of:

- 1 Pilot
- 3 Slammers
- 32 FC Bricks

Note: 2U of space is reserved above the PDUs for cable routing. The number and type of PDUs depends on the power supply. If more PDUs are needed, or when you need to add additional components into the rack (such as adding another Slammer), then everything has to move up to make room, keeping the 2U of reserved space, and moving any Bricks displaced at the top to the next rack.

If only two Slammers are being installed, replace Slammer 3 with two filler panels.
Figure 15 Fully loaded 42U racks for three Slammers and 32 FC Bricks

Note: Brick names are just for illustration; actual names, as seen in the AxiomONE Storage Services Manager, may be different.

Note: In a system that is configured for the maximum number of Bricks, connect the additional racks to the first rack before you install and cable the hardware components.

For information on 4-Slammer FC systems, go to About Component Placement for 4 Slammers and 64 Bricks. For information on a 1-Slammer FC system, go to Sample Power Scheme for One Slammer and 16 SATA Bricks.

About Component Placement for 4 Slammers and 64 Bricks

A Pillar Axiom system with four Slammers supports up to 64 FC or SATA Bricks. Install the components in the rack as shown in the figure below. Any components that are not installed must be replaced with filler panels.

The figure below illustrates how the Pillar Axiom storage system components are mapped into a fully loaded 42U racks for the maximum configuration of:

- 1 Pilot
• 4 Slammers

• 64 FC or SATA Bricks

When using SATA Bricks, this configuration can use as few as two Slammers. Replace the empty spaces for the missing Slammers with filler panels. If less than four Slammers are being used with FC Bricks, go to About Component Placement for Two or Three Slammers and FC Bricks for more information.

**Note:** 2U of space is reserved above the PDUs for cable routing. The number and type of PDUs depends on the power supply. If more PDUs are needed, then everything has to move up to make room, keeping the 2U of reserved space, and moving any Bricks displaced at the top to the next rack.

**Figure 16 Fully loaded 42U racks for four Slammers and 64 Bricks**

**Note:** Brick names are just for illustration; actual names, as seen in the AxiomONE Storage Services Manager, may be different.

**Note:** In a system that is configured for the maximum number of Bricks, connect the additional racks to the first rack before you install and cable the hardware components.
Pilot Rail Kit Parts

Verify that the rail kit contains all the parts listed in the table.

Before installing a pair of Pilot rack rails, make sure you have:

- One Pilot rail kit with rails and scopes pre-attached
- #20 Torx wrench
- Socket wrench

Pilot rails are 2U rack rail assemblies that contain the following parts:

Table 5 Pilot rail kit parts

<table>
<thead>
<tr>
<th>Component</th>
<th>Drawing (not to scale)</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilot rail kits</td>
<td>![Image]</td>
<td>One left-right pair per kit.</td>
</tr>
<tr>
<td>1475-00036-xx</td>
<td>![Image]</td>
<td></td>
</tr>
<tr>
<td>1450-00037-xx</td>
<td>![Image]</td>
<td></td>
</tr>
<tr>
<td>Pilot rail scopes</td>
<td>![Image]</td>
<td>One left-right pair per kit.</td>
</tr>
<tr>
<td>2525-00093-xx</td>
<td>![Image]</td>
<td></td>
</tr>
<tr>
<td>2525-00095-xx</td>
<td>![Image]</td>
<td></td>
</tr>
<tr>
<td>10-32 Hex nuts for attaching scopes to rails</td>
<td>![Image]</td>
<td>Eight per kit.</td>
</tr>
<tr>
<td>2500-01051-xx</td>
<td>![Image]</td>
<td></td>
</tr>
</tbody>
</table>
### Table 5 Pilot rail kit parts (continued)

<table>
<thead>
<tr>
<th>Component</th>
<th>Drawing (not to scale)</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rack mount spacers 2500-01065-xx</td>
<td></td>
<td>Four per kit.</td>
</tr>
<tr>
<td>Rack mount nut bar 2526-00106-xx</td>
<td></td>
<td>Two per kit.</td>
</tr>
<tr>
<td>10-32 x 1/2 in Torx head (#20) screws 2500-01071-xx</td>
<td></td>
<td>12 per kit.</td>
</tr>
</tbody>
</table>

### Install a Pair of Pilot Mounting Rails

1. Hang the scope hook in the appropriate hole at the back of the rack, as shown below:
Figure 17 Scope hook attachment

Legend

1  Vertical rail at back of rack
2  Unit 32
3  Scope hook
4  Bottom holes for each unit
5  Unit 31

In the figure above, two labeled rack units, 31 and 32, are shown at the back of the rack.

- The bottom of unit 31 is just out of sight below its bottom hole.
- The scope hook is one-and-a-half units above the bottom of the rail.
- When you place the hook in the middle of unit 32, the bottom of the rail lines up with the bottom of unit 31.
- A 2U Pilot rail would fill units 31-32 in the above illustration.

2 At the front of the rack, slide the rail scopes until the rail reaches the holes at the front. The rail flange goes in front of the rack mount holes, and the four-hole spacer bar goes behind, as shown below.

3 Making sure the rail is horizontal, fit the four-hole spacer bar into the four square rack holes that span the boundary between the two units this rail is to occupy. The figure below shows positioning a spacer for units 35 and 36.
**Chapter 2** Set Up the Rack

**Figure 18** Positioning spacer bar

Legend

1  Unit boundary

**Figure 19** Pilot rail front attachment

Legend

1  Rear
2  Four-hole spacer bars
3  Front
4  Slider lock nuts
4 Use two #20 Torx screws to secure the rail, through the rack into the spacer bar. Repeat this for a second screw in the front, as shown above. Use the center holes. The top and bottom holes are for securing the Pilots to the rack.

5 At the back, place a spacer on a #20 Torx screw and screw it through the hole in the rear frame and into the rail under the scope hook. Install the second screw the same way.

6 Repeat steps 1-4 for the other side rail.

7 Tighten the four slider lock nuts that attach each rail scope to the rail.

**Slammer Rail Kit Parts**

Verify that the rail kit contains all the parts listed in the table.

To install a pair of Slammer rails, you need:

- One Slammer rack rail kit with rails and scopes pre-attached
- #20 Torx wrench
- Socket wrench

Slammer rails are 4U rack rail assemblies that contain the following parts:

<table>
<thead>
<tr>
<th>Table 6 Slammer rail kit parts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Component</strong></td>
</tr>
<tr>
<td>Slammer rails</td>
</tr>
<tr>
<td>1475-00024-xx</td>
</tr>
<tr>
<td>1475-00025-xx</td>
</tr>
<tr>
<td>Slammer rail scopes</td>
</tr>
<tr>
<td>2525-00093-xx</td>
</tr>
<tr>
<td>2525-00095-xx</td>
</tr>
</tbody>
</table>
Table 6 Slammer rail kit parts (continued)

<table>
<thead>
<tr>
<th>Component</th>
<th>Drawing (not to scale)</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-32 Hex nuts for attaching scopes to rails 2500-01051-xx</td>
<td></td>
<td>Eight per kit.</td>
</tr>
<tr>
<td>Rack mount spacers 2500-01065-xx</td>
<td></td>
<td>Eight per kit.</td>
</tr>
<tr>
<td>10-32 x 1/2 in Torx head (#20) screws 2500-01071-xx</td>
<td></td>
<td>Ten per kit.</td>
</tr>
</tbody>
</table>

Install a Pair of Slammer Mounting Rails

1. Hang the scope hook in the appropriate hole at the back of the rack, as shown below. These rail scopes are always used for components that take up at least two rack units.
In the figure above, two labeled rack units, 31 and 32, are shown at the back of the rack.

- The bottom of unit 31 is just out of sight below its bottom hole.
- The scope hook is one-and-a-half units above the bottom of the rail.
- When you place the hook in the middle of unit 32, the bottom of the rail lines up with the bottom of unit 31.
- A 4U Slammer rail would fill units 31-34 in the above illustration.

2 At the front of the rack, slide the rail scopes until the rail reaches the holes at the front.

3 Making sure the rail is horizontal, place a spacer on a #20 Torx screw and screw it through the bottom hole in the front frame and into the rail, as shown in the next figure. Repeat this for the hole above it (but not the top hole, which is for securing the Slammer).
4 Secure the screws at the back, under the scope hook.

5 Repeat steps 1-4 for the other side rail.

---

Figure 21 Slammer rails installed in rack

---

Legend

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rear</td>
</tr>
<tr>
<td>2</td>
<td>Front</td>
</tr>
<tr>
<td>3</td>
<td>Slider lock nuts</td>
</tr>
</tbody>
</table>

6 Tighten the four slider lock nuts that attach each rail scope to the rail.

---

Brick Rail Kit Parts

Verify that the rail kit contains all the parts listed in the table.

To install a pair of 2U rack rails, you need:

- One Brick rail kit with rails and scopes pre-attached
- #20 Torx wrench
- Socket wrench

Brick rails are 2U rack rail assemblies that contain the following parts:
### Table 7 Brick rail kit parts

<table>
<thead>
<tr>
<th>Component</th>
<th>Drawing (not to scale)</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brick rails</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1450-00022-xx</td>
<td></td>
<td>One left-right pair per kit.</td>
</tr>
<tr>
<td>1450-00023-xx</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brick rail scopes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2525-00093-xx</td>
<td></td>
<td>One left-right pair per kit.</td>
</tr>
<tr>
<td>2525-00095-xx</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10-32 Hex nuts for attaching scopes to rails</td>
<td></td>
<td>Eight per kit.</td>
</tr>
<tr>
<td>2500-01051-xx</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rack mount spacers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2500-01065-xx</td>
<td></td>
<td>Four per kit.</td>
</tr>
<tr>
<td>10-32 x 1/2 in Torx head (#20) screws</td>
<td></td>
<td>Ten per kit.</td>
</tr>
<tr>
<td>2500-01071-xx</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Install a Pair of Brick Mounting Rails

1. Hang the scope hook in the appropriate hole at the back of the rack, as shown below. These rail scopes are always used for components that take up at least two rack units.
In the figure above, two labeled rack units, 31 and 32, are shown at the back of the rack.

- The bottom of unit 31 is just out of sight below its bottom hole.
- The scope hook is one-and-a-half units above the bottom of the rail.
- When you place the hook in the middle of unit 32, the bottom of the rail lines up with the bottom of unit 31.
- A 2U Brick rail would fill units 31-32 in the above illustration.

2. At the front of the rack, slide the rail scopes until the rail reaches the holes at the front.

3. Making sure the rail is horizontal, place a spacer on a #20 Torx screw and screw it through the center hole in the front frame and into the rail, as shown in the next figure. Repeat this for the other center screw in the front and the screws at the back, under the scope hook.
The square hole in the front is at the top on the left side and at the bottom on the right side. These square holes are for securing the Brick. Use only the round holes to secure the rails into the rack.

**Figure 23 2U rack rails installed in rack**

1. Repeat steps 1-3 for the other side rail.
2. Tighten the four slider lock nuts that attach each rail scope to the rail.
CHAPTER 3

Install Components

About Power Distribution Unit Installation

Mount power distribution units (PDUs) in the bottom units of the rack. The default configuration places up to four 1U 220 V/30 A PDUs at the bottom of the rack.

To install a PDU, you need:

- A 1U or 2U PDU.
- #2 Phillips-head screwdriver.
- Four snap-in cage nuts (for square mounting holes) or four clip-on cage nuts (for round mounting holes).
- Four 10-32 x ½ in screws.

Important! We strongly recommend that you use PDUs from Pillar Data Systems. If you install non-Pillar PDUs, they must meet the Pillar Data Systems PDU specification, as described in the Pillar Axiom Site Preparation Survey.
Install a 1U PDU

1 Choose one of the following options:
   • For square mounting holes, snap a 10-32 snap-in cage nut into the bottom and 3rd hole of each channel.
     
     ![Snap-in cage nut](image1)
     
     Figure 24 Snap-in cage nut
   
   • For round mounting holes, clip one 10-32 clip-on cage nut into the bottom and 3rd holes of each channel in the pair. (Pillar Data Systems does not provide clip-on cage nuts.)

2 Insert the PDU into the rack, as shown below. There are no rails for a PDU.

![Securing a 1U PDU in the bottom of a rack](image2)

Figure 25 Securing a 1U PDU in the bottom of a rack

3 Align the ears of the PDU to the four cage nuts.
4 Insert a 10-32 x ½ in screw through the top and bottom holes in the right and left ears of the PDU and into the cage nuts. Secure both screws tightly.

**Figure 26 An installed PDU at the bottom of the rack**

![Diagram of an installed PDU]

**Legend**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10-32 x ½ screws</td>
</tr>
<tr>
<td>2</td>
<td>RU marker</td>
</tr>
</tbody>
</table>

**Important!** Do not plug the PDU into a power supply until the rack is complete and ready for startup.

5 Repeat this procedure to install any other PDUs.
Install a 2U PDU

1  For square or round mounting holes:
   • Insert one 10-32 snap-in cage nut into the 3rd hole from the bottom of each channel in the pair.
   • Insert one 10-32 snap-in cage nut into the 7th hole from the bottom of each channel in the pair.

2  Align the slots in the PDU ears to the four cage nuts.

3  Insert a 10-32 x ½ in screw through the bottom hole in the right and left ears of the PDU and into the cage nuts. Secure both screws tightly.

4  Repeat Step 3 for the top holes in both ears.

Important! Until you are instructed to do so, do not plug the PDU into an inlet power supply.
About Installation

Install the Pilot at the bottom of the rack, just above the PDUs. This placement makes installation and future expansion as efficient as possible.

⚠️ DANGER Ensure that component distribution in the rack is balanced. Follow the hardware placement map to ensure this balance. Uneven distribution can cause hazardous instability. The rack must have stabilization plates or anti-tip brackets installed so the rack does not tip when you install a component.

⚠️ Warning Mounting rail assemblies must be used to support and secure a Pilot in the rack. The Pilot's mounting ears by themselves will not support the weight of the Pilot.
Install a Pilot

1. Put on an antistatic wrist strap and attach the grounding wire to ground.

2. From the front of the rack, place the back side of the first Pilot server component on the bottom mounting rails and slide it into place.
   **Important!** When sliding a Pilot CU into the rack, keep it level to avoid bending the rail supports.

3. Insert the other Pilot CU above it, as shown below.

   **Figure 27 Inserting the upper Pilot CU**

4. Use a 10-32 Torx screw through the hole in each Pilot CU ear and screw it in securely with a #20 Torx wrench.
   **Important!** Do not plug the chassis into a PDU until instructed to do so.
Never block the inlet and outlet holes in the chassis components. Sufficient air circulation is required for the components to operate properly and to avoid a fire hazard. Do not push objects of any kind into the ventilation holes. Such action could result in fire or electrical shock. Keep all liquids away from hardware components.
About Slammer Installation

Install the Slammers above the Pilot.

⚠️ CAUTION ⚠️
A Slammer weighs 94 lb (42.6 kg). For safe handling, use two people to lift it.

⚠️ DANGER ⚠️
Ensure that component distribution in the rack is balanced. Follow the hardware placement map to ensure this balance. Uneven distribution can cause hazardous instability. The rack must have stabilization plates or anti-tip brackets installed so the rack does not tip when you install a component.
Install a Slammer

1. Put on an antistatic wrist strap and attach the grounding wire to ground.

2. From the front side of the rack, set the back of the Slammer onto the mounting rails and slide the Slammer into place. Leave about one inch (2.5 cm) of clearance between the Slammer’s ears and the vertical channels.

   **Important!** When sliding the Slammer into the rack, keep it level to avoid bending the rail supports, which would make it difficult to insert a component below.

   ![Figure 28 Inserting a Slammer](image)

3. Put a spacer on a 10-32 x 1/2-in Torx screw, then insert the screw through the hole in the ear on the left side of the Slammer. This spacer helps to center the Torx screw in the hole.

4. Push the Slammer so that its ears and the spacers rest against the vertical channels and start the Torx screws with your fingers.

5. Use a #20 Torx wrench to secure the screws to the rack.

   **Note:** This step only keeps the Slammer in place; the screws provide no other support.
6 Repeat Steps 3-6 for the right side of the Slammer.

If you have a two, three, or four Slammer system, install the remaining Slammers now.

**Important!** Do not apply power to the Slammer until instructed to do so.
Install a Brick

Pillar Data Systems packages and ships the Bricks separately from the system. As you install the Bricks, work from the bottom of the rack toward the top. If you have additional racks of Bricks, work from the top down.

1. Put on an antistatic wrist strap, ground strap, or heel strap, and attach the grounding wire to a ground.

2. At the front of the rack, insert the Brick onto the mounting rack rails and slide into place.

**CAUTION** Before you handle a component, make sure that you have taken electrostatic discharge precautions:

- The minimum requirement is an anti-static wrist strap connected to a hard ground. We recommend that you remove components from their packaging and place them on an ESD-qualified table equipped with ground points for wrist straps.

- Static charges can build up rapidly on rolling carts. If you transport a hardware component by cart, ground the cart with a drag chain on an ESD floor. If there is no ESD cart available or ESD floor, ground yourself before you touch a component that has been transported on a cart.

**Important!** When you slide the component into the rack, keep it level to avoid bending the rail supports, which would make it difficult to insert a component below.
3 Use two, 10-32 Torx screws (two on each side) and a Torx T20 driver to secure the Brick ears to the rack.

**Important!** Use care as you install the screws on the right to avoid damaging the printed circuit, which provides power and signals to the Brick bezel.

Figure 30 Brick ears

Legend

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Printed circuit assembly</td>
</tr>
<tr>
<td>2</td>
<td>10-32 screw</td>
</tr>
</tbody>
</table>

4 Inspect the disk drives to ensure each drive is flush and securely seated.

- Fully open the cam latch on the disk drive carrier.
- Press the disk drive carrier into the Brick chassis until it stops.
• Close the cam latch until it snaps shut to engage the disk drive with the Brick midplane.

Figure 31 Brick front

5 If you have multiple Bricks, install them all now, even those that require additional racks.
Install the Slammer Batteries

Slammer batteries are shipped separately. Use the procedure below to install them.

1. Ensure the installation dates on the Slammer batteries have not expired.
   The expiration date is printed on the label on top of the battery. If a battery has expired, contact Technical Support.

2. Slammer batteries install from the front of the Slammer, so you have to remove the front cover (bezel).
   If the bezel is not attached, skip to step 5.

3. Press the Slammer ejector tabs on the bezel to unlock them.

4. Lift both ejector tabs to disengage the bezel from the rack.

   ![Figure 32 Slammer bezel removal]

   **Legend**
   
   1. Ejector tab button
   2. Disengage the bezel from the rack
   3. Bezel hooks

5. Insert the batteries into the Slammer, but do not secure them until you complete the installation. When you secure them, they start to discharge as they preserve data in memory. Since there is no data to preserve, you should wait until you are ready to power the system before securing the batteries.
Figure 33 Slammer battery insertion
Connect Data Cables

About Data Cabling the Pillar Axiom System

The Pillar Axiom system transmits data between its components through the Storage System Fabric (SSF) and the Private Management Interface (PMI). The Pillar Axiom system can be any component combination of:

- One Pilot.
- One to four Slammers.
- One to 64 Bricks.

The SSF and PMI cables provide the data connections among the Bricks, Slammers, and Pilots to support all data and management traffic.

All of the possible PMI and SSF data cable combinations that can be installed in the Pillar Axiom system are fully detailed in the Pillar Axiom 500 SSF Cabling Reference. Use the information in that guide to install the data cables for your components.

Once you have completed cabling the SSF and PMI, go to Connect the Pillar Axiom System to Your Network.
Summary of Cabling Rules

These cabling rules describe fundamental principles that need to be applied when cabling Fibre Channel and SATA Bricks in a Pillar Axiom 500 system.

**Note:** Future releases of the Pillar Axiom storage system will change some of these rules.

- A string is a collection of Bricks connected together. The head of the string connects to two Slammer ports. Each of the other Bricks in the string are connected to the previous Brick in the string.
- Strings contain combinations of FC RAID Bricks, FC Expansion Bricks, and SATA Bricks.
- A string may contain up to eight Bricks.
- A string may contain up to four FC Bricks.
- FC RAID Bricks and SATA Bricks can be connected to Slammer ports. FC RAID Bricks and SATA Bricks can also be connected to other Bricks, which directly or indirectly connect to Slammer ports.
- 1-Slammer systems have at most four strings. Multi-Slammer systems have at most eight strings.
- Systems that have been upgraded by adding an additional Slammer can run with the number of strings appropriate to the prior configuration.
- Add Bricks to strings so that the number of Bricks in any string differs by no more than two between the longest and the shortest strings.
- When adding SATA or FC RAID Bricks to a string, attach them to the last SATA or FC RAID Brick on that string.
- When adding SATA Bricks to a Pillar Axiom system that previously had only FC Bricks, add all the SATA Bricks before you respond to the "Media Placement Recommendations" Administrator Action item.
- FC RAID Bricks use Slammer ports in the same order as the scheme for connecting SATA Bricks. This scheme fosters balance among the strings while maintaining predictable assignment of Bricks to strings. A given Brick will always be on a particular string with particular Slammer ports. The same cable labels are used for SATA and FC RAID Bricks.
• Brick CU-0 upstream ports are connected to Slammer CU-0 ports or the CU-0 downstream ports of another Brick; likewise, Brick CU-1 ports are connected to Slammer CU-1 ports or Brick CU-1 ports.

• FC Expansion Bricks are connected to FC RAID Bricks using the J0, J1, and Pnet ports. The current release restricts FC Brick deployment to zero or one FC Expansion Brick on each FC RAID Brick.

• FC RAID Bricks can be configured alone or in pairs of one FC RAID Brick and one FC Expansion Brick.

• Systems upgraded in the field may have a configuration different from those built in the factory.

• For systems built at the factory, strings that mix SATA Bricks and FC Bricks will have the FC RAID Bricks closest to the Slammer. Field upgrades may differ—newly added Bricks can be connected to the last FC RAID or SATA Brick at the end of existing strings.

• FC RAID Bricks and FC RAID + Expansion pairs may be added to a running system as long as they are cabled within the rack, powered on, and have completed initialization prior to connecting them to the existing configuration.

  **Tip:** After RAID controllers finish initializing, scrubbing normally starts on the disk drives. Scrubbing causes all the disk drive LEDs to blink rapidly.

  **Important!** When adding FC RAID + Expansion pairs, cable all the links between the new Bricks, power them up, allow them to initialize, and then add the links to the previously running system.

• In 3- and 4-Slammer configurations, each Brick must connect to the Slammers as follows:
  
  • 3-Slammer configuration: Connect to Slammer 1 or Slammer 3 and to Slammer 2.
  
  • 4-Slammer configuration: Connect to Slammer 1 or Slammer 2 and to Slammer 3 or Slammer 4.

  **Tip:** To maximize performance and avoid having a Slammer control unit traverse an inter-switch link to get to the Brick, be sure the above conditions are met.
Connect the Pillar Axiom System to Your Network

To connect the system to your network:

1. Connect the management (MGMT) ports to the Ethernet LAN on which the management console resides.

   Figure 34 Pilot management cables

2. For 2-port NAS Slammers, connect gigabit Ethernet (GbE) cables from the network interface module (NIM) ports on the Slammer to any open data ports available on two separate gigabit Ethernet network switches. For 4-port GbE NAS Slammers, connect the NIM ports to four separate network switches.

   For SAN Slammers, connect Fibre Channel cables from the NIM ports on the Slammer to any open data ports available on two separate FC network switches.

Pilot Network Requirements

The Pilot requires:

- Two 100 BaseT ports for the public connection to the management network. For added redundancy, the two connections should be to separate switches. The Pillar Axiom system provides a standard Cat 5 RJ-45 jack on each Pilot control unit (CU) for this connection.
• The external switch ports must be set to auto-negotiation for the Pilot interfaces.

• Three IP addresses on the same subnet: one IP for each physical interface and one shared IP.

Note: VLAN tagging is not supported on the management interfaces.

The AxiomONE Path Manager (APM) communicates with the Pilot over secure, encrypted XML. If the APM is installed on a SAN host, that host will require an Ethernet interface for communication with the AxiomONE Storage Services Manager. The network configuration must allow the SAN host to reach the Pilot management IP Ethernet interfaces.

Slammer Network Requirements

NAS data paths require gigabit Ethernet connections. Both fiber and copper are supported.

SAN data paths require 1 Gbps, 2 Gbps, or 4 Gbps Fibre Channel (optical) connections, which can be single- or multi-mode.

The type of connection should be specified when ordering your Pillar Axiom system. Contact your Account Representative if you need to change the type of physical connection for either Gigabit or Fibre Channel.
Connect Power Cables

If you are using Pillar Data Systems racks, the system comes with all the components and power supplies (power distribution units or PDUs) already installed in the rack. When you ordered the system you specified the type of power (voltage, amperage, and phases), which determines the type of electrical service outlets you have at your facility. The plugs on the PDUs you ordered have been installed to match these outlets.

Use the following procedure to connect the component's power cables and power cables that were not pre-installed:

1. Review the Pillar Axiom power requirements in About Component Power Usage and in PDU Outlet Amperage Limits.
2. Review the information in About Power Cabling and verify your PDUs meet the electrical requirements.
3. Plug in your system components so that no PDU amperage limits are exceeded.
4. Dress all cables to the opposite side of the rack from any data cables.
5. Secure the power cables to the rack such that they do not restrict the removal of any other component.

**Important!** You should not turn on any power circuits until the installation is complete and all network cables are in place. Powering on the system is described in Complete the Installation.
About Component Power Usage

The components must be plugged in to the PDUs such that they do not exceed the amperage rating of any outlet group. If you exceed the amperage rating, the circuit breakers trip.

Except where indicated, the maximum rated amperage of the outlet banks remains the same regardless of the electrical service voltage. Therefore, if you are using 230V service, components draw half the amperage as when powered by 115V and you can plug more components into each PDU.

This table lists the maximum electrical requirements of the basic Pillar Axiom components. Each component has redundant power cords plugged into different PDUs on separate circuits.

<table>
<thead>
<tr>
<th>Component</th>
<th>Amps at 115V</th>
<th>Amps at 208V</th>
<th>Amps at 230V</th>
<th>Power (watts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slammer</td>
<td>6.10 A</td>
<td>3.29 A</td>
<td>3.05 A</td>
<td>685 W</td>
</tr>
<tr>
<td>SATA Brick</td>
<td>2.55 A</td>
<td>1.22 A</td>
<td>1.17 A</td>
<td>255 W</td>
</tr>
<tr>
<td>FC Brick</td>
<td>3.35 A</td>
<td>1.59 A</td>
<td>1.49 A</td>
<td>330 W</td>
</tr>
<tr>
<td>Pilot</td>
<td>2.49 A</td>
<td>1.37 A</td>
<td>1.24 A</td>
<td>286 W</td>
</tr>
</tbody>
</table>

With redundant power supplies, the amperage draw for each power cord is rated for the case when one circuit fails, which increases the amperage draw on the other cord.
PDU Outlet Amperage Limits

The number of Axiom system components you can plug into each Pillar-supplied PDU varies. This section discusses each PDU.

The Pulizzi TPC2105 (see the figure below) can use 115 V or 230 V, 30 A electrical service. The amperage limits are the same at either input voltage.

Figure 35 Pulizzi TPC2105-1 outlet amperage limits

Legend

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Front</td>
</tr>
<tr>
<td>2</td>
<td>Rear</td>
</tr>
<tr>
<td>3</td>
<td>Supports 10 A</td>
</tr>
<tr>
<td>4</td>
<td>Supports 10 A</td>
</tr>
<tr>
<td>5</td>
<td>Supports 10 A</td>
</tr>
<tr>
<td>6</td>
<td>Supports 10 A</td>
</tr>
<tr>
<td>7</td>
<td>Supports 12 A</td>
</tr>
<tr>
<td>8</td>
<td>Supports 12 A</td>
</tr>
<tr>
<td>9</td>
<td>Supports 24 A maximum across all outlets</td>
</tr>
</tbody>
</table>

The Pulizzi TPC2104 (see the figure below) can use 115 V or 230 V 20 A electrical service. The amperage limits per four-outlet group are different for 115 V and 230 V, but the overall amperage limit is 16 A regardless of the input voltage.
The Pulizzi PC3365 is shown below. It requires 230/400 VAC WYE three-phase input power. The output at each outlet is always 215V. This PDU is only available outside the United States.

**Figure 36 Pulizzi TPC2104 outlet amperage limits**

<table>
<thead>
<tr>
<th>Legend</th>
<th>1 Front</th>
<th>8 Supports 16 A maximum across all outlets</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Rear</td>
<td>9 Supports 115 V</td>
<td></td>
</tr>
<tr>
<td>3 Supports 230 V</td>
<td>10 Supports 15 A</td>
<td></td>
</tr>
<tr>
<td>4 Supports 10 A</td>
<td>11 Supports 15 A</td>
<td></td>
</tr>
<tr>
<td>5 Supports 10 A</td>
<td>12 Supports 15 A</td>
<td></td>
</tr>
<tr>
<td>6 Supports 10 A</td>
<td>13 Supports 15 A</td>
<td></td>
</tr>
<tr>
<td>7 Supports 10 A</td>
<td>14 Supports 16 A maximum across all outlets</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 37 Pulizzi PC3365 outlet amperage limits**

<table>
<thead>
<tr>
<th>Legend</th>
<th>1 Phase X: 16 A</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Phase Y: 16 A</td>
<td></td>
</tr>
<tr>
<td>3 Phase Z: 16 A</td>
<td></td>
</tr>
<tr>
<td>4 Each four-outlet group has an 8 A limit</td>
<td></td>
</tr>
</tbody>
</table>
About Power Cabling

Here are some examples of where to plug components with various types of PDUs.

With a Pillar Data Systems rack, the Brick power cords are pre-installed in the rack with colored tie wraps, ready for you to plug into the back of each Brick. All cords of the same color connect to one set of power distribution units (PDUs), while the other cords connect to the other set of PDUs.

Sample Power Cabling for One Slammer and Three Bricks

The Pillar Axiom storage system in the figure below uses 230 V power and two Pulizzi TPC 2104 PDUs. The power cords on each component must go to separate PDUs, plugged in to separate circuits. A sample power cabling scheme such as the one below would distribute the load within the limits of each outlet bank.

Figure 38 Sample power cabling scheme with 230 V power

Legend

<table>
<thead>
<tr>
<th>1</th>
<th>Brick 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Brick 2</td>
</tr>
<tr>
<td>3</td>
<td>Brick 3</td>
</tr>
<tr>
<td>4</td>
<td>Slammer</td>
</tr>
<tr>
<td>5</td>
<td>Pilot</td>
</tr>
<tr>
<td>6</td>
<td>PDUs</td>
</tr>
</tbody>
</table>
In the above example, the Slammer’s CU 0, the two SATA Bricks and the Pilot in the four-outlet bank require 1.525, 1.525, 1.24, 1.24, and 0.80 A respectively, or 6.33 A. This is below the 10-A limit for a four-outlet bank.

If we modify the example to use 120 V, the cable connection configuration depends on which PDU you are using. The same two Slammers and two SATA Bricks draw 3.05, 3.05, 2.54, 2.54, and 1.50 or 12.68 A. This load is acceptable for the Pulizzi TPC 2104 PDU because the amperage limit for a four-outlet bank is 15 A at 115 V.

However, for the TCP2105-1 PDU, at 115 V the maximum for four outlets is 10 A. Therefore, you would have to distribute the plugs differently than the 230 V system, as shown in the figure below:

**Figure 39 Sample power cabling scheme with 115 V on a TCP2105-1 PDU**

Other configurations are possible. Make sure that you do not exceed the rating for a four-outlet bank or the rating for a set of two banks, which is 12 A for this PDU.

**Note:** Another PDU is still needed for the power cords for the redundant circuit, which was left out of the above figures for simplicity. The redundant PDU should be cabled the same way.

**Note:** The amperage requirements for an FC Brick is higher than a SATA Brick at 115 Volts. The FC Bricks draw almost 1 full additional amp each. Configuring for FC Bricks may require upgrading your PDU specification. If you have any questions about your PDU configuration please contact Pillar Data Systems Technical Support.
Sample Power Scheme for One Slammer and 16 SATA Bricks

One Slammer and 16 SATA Bricks (and a Pilot) represents a full 42U rack. Split power cables (the plug end splits into two outlet ends) enable you to connect two components to a single outlet in the PDU and reduce the density of the cabling.

**Note:** The total amperage draw per outlet bank is more important than which Brick is plugged into which outlet. The drawings below illustrate one way to distribute the load. Always try to balance the load among the outlet banks.
Figure 40 Sample power cabling scheme with 230 V (one circuit shown)

Legend

1  SATA Brick 16: 1.17 A drawn  
2  SATA Brick 15: 1.17 A drawn  
3  SATA Brick 14: 1.17 A drawn  
4  SATA Brick 13: 1.17 A drawn  
5  SATA Brick 12: 1.17 A drawn  
6  SATA Brick 11: 1.17 A drawn  
7  SATA Brick 10: 1.17 A drawn  
8  SATA Brick 9: 1.17 A drawn  
9  SATA Brick 8: 1.17 A drawn  
10 SATA Brick 7: 1.17 A drawn  
11 SATA Brick 6: 1.17 A drawn  
12 SATA Brick 5: 1.17 A drawn  
13 SATA Brick 4: 1.17 A drawn  
14 SATA Brick 3: 1.17 A drawn  
15 SATA Brick 2: 1.17 A drawn  
16 SATA Brick 1: 1.17 A drawn  
17 Slammer CU 0: 1.525 A drawn  
18 Slammer CU 1: 1.525 A drawn  
19 Pilot: 0.8 A drawn  
20 Total 4.78 A drawn  
21 Total 7.0 A drawn  
22 Total 7.0 A drawn  
23 Total 3.9 A drawn  
24 Grand total 11.78 A drawn  
25 Grand total 10.9 A drawn

Important! If you use split power cables, as shown above, make sure they power separate components. Do not use a split power cable to power two sides of the same component. The two sides need to be on separate circuits, in case one fails.
**Note:** The amperage requirements for an FC Brick are higher than a SATA Brick at 115 Volts. The FC Bricks draw almost 1 full additional amp each. Configuring for FC Brick pairs may require upgrading your PDU specification. If you have any questions about your PDU configuration please contact Pillar Data Systems Technical Support.
CHAPTER 6

Complete the Installation

Power On the System

As part of your site planning, you set up a separate circuit and power outlet for each PDU. These outlets should be located within reach of the 15 ft. (4.572 m) PDU power input cables.

1. Ensure the PDU circuit breakers are in the Off position.

2. Connect the PDUs to a facility power source. If the facility's main circuit breakers are off, turn them on to supply power to the PDUs.

3. At the front of the system, use a #2 flathead or Phillips head screwdriver to secure the Slammer batteries in place with the two attached screws.

   Figure 41 Secure Slammer batteries

4. At the back of the system, turn on the power switches for each Brick.
Figure 42 Turn on Brick power

Legend

1 Brick power switches

**Note:** Slammers and Pilots automatically power on when you apply power to the system in the next step.

5 At the front of the system, switch on the PDU circuit breakers to apply power to the hardware components. This lights the Power On LED, and starts the component cooling fans.

Figure 43 Turn on PDU power

**Important!** You must turn on all of the PDUs within 10 sec of each other.
Verify Status LEDs at the Front of the System

Check the component LEDs to verify hardware installation.

1. Verify the Pilot CU LEDs are green and not blinking.

   If the LEDs are off, ensure there is power to the PDU circuit breakers and you have turned them on within 10 sec of each other.

2. Verify that the Slammer Status LEDs are green and not blinking. They may be amber while the Slammer is booting and the software initializing, but should turn green when the Slammer is operational.
Verify Status LEDs at the Front of the System

3 Verify that the Fault LEDs are off. If they are on at this stage, it is usually because the bezel is not fully seated.

4 For each Brick make sure that the CU 0 and CU 1 Status LEDs are green. Blinking means activity and is normal.
5 Verify that the Fault LED for each Brick is off. A lit Fault LED at this stage usually means the bezel is not fully seated.

For a detailed list of Slammer LED startup progress codes refer to Slammer LED Startup Progress Codes.
Verify Status LEDs at the Back of the System

At the back of the system:

1. Verify that the connectivity LEDs on each Pilot CU are green. Blinking indicates activity, which may be normal during bootup.

   If the LEDs are off, check both Pilot management connections and both connections to your Ethernet LAN.

   **Figure 47 Pilot connectivity LEDs**

   ![Figure 47 Pilot connectivity LEDs]

   **Legend**

   | 1 | Private LAN connectivity LEDs |
   | 2 | Public management port connectivity LEDs |

2. On the Slammers verify:
   - The power supply LEDs are green and not blinking.

   **Figure 48 Slammer connectivity LEDs**

   ![Figure 48 Slammer connectivity LEDs]

   **Legend**

   | 1 | Power supply LEDs |
   | 2 | GbE network interface module (NIM) port LEDs (4-port NIM and SAN FC NIM not shown) |
   | 3 | CU LEDs |
   | 4 | FC and FS LEDs |
If the power supply LEDs are off or are amber make sure the power cable is securely connected at both ends and the PDUs are powered on.

- On a NAS Slammer, for any 2-port or 4-port network interface module (NIM) GbE port, the LED on the left is green and not blinking, and the one on the right is amber. If they are off, check the network connections.

- On a SAN Slammer, the NIM port LEDs are green and not blinking.

- For the control unit LEDs, the ST LED is green. The ACT LED might be on if the Slammer is configured and active, but is normally off at this stage of installation.

- All LEDs with an FC or FS cable port connection are green and not blinking. If they are amber or off, check the FC cabling.

3 On the Bricks, verify:

- The power supply LEDs are green and not blinking.

Figure 49 Brick LEDs

Legend

<table>
<thead>
<tr>
<th>1</th>
<th>RAID controller LEDs</th>
<th>4</th>
<th>Spare disk drive LEDs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Power supply LED</td>
<td>5</td>
<td>RAID controller LEDs</td>
</tr>
<tr>
<td>3</td>
<td>ES module LED</td>
<td>6</td>
<td>Power supply LED</td>
</tr>
</tbody>
</table>

If either power supply LED is off or amber:

- Ensure the power cable on that side is securely connected at both ends.

- Ensure the PDU and Brick is powered on.

- Ensure you turned on the PDUs within 10 sec of each other.

- The enclosure services (ES) module LED is green and not blinking. If the ES module LED is amber, ensure that both power cables are securely connected to both the Brick and the PDU.

- The connected RAID controller LEDs are green. If the RAID controller LEDs are off or are blinking green, check the network connections.
• The spare disk drive LEDs are green and not blinking. If the ES module, RAID controller, or spare disk drive has failed, contact Technical Support.
Attach the Bezels

At the front of the system, ensure all disk drives are fully seated by pressing each disk drive carrier into the chassis to make sure they are fully seated.

You must attach all bezels or the system generates an error condition and lights amber LEDs.

1. Insert the bottom two hooks on the bezel into the bottom rack rail tabs.

   ![Bezel hook on the right side of the bezel](image)

   **Legend**

   1. Insert the bezel hooks on each side

2. Press the top corners of the bezel to engage the top two bezel hooks with the top rail tabs.

3. Press both ejector tabs (if open) until they lock in place. The top hooks should latch with an audible click. If the bezel does not light when you apply power to the system, verify that the top and bottom hooks are all properly engaged.
Figure 51 Press ejector tabs to lock bezel

Legend

1 Press ejector tabs to lock bezel
About HBA Driver and Firmware Installation (SAN Only)

You must install Fibre Channel HBAs in the servers and their required software before you can access LUNs on a SAN system. Complete the instructions from your HBA vendor to:

• Install the HBAs in the servers.
• Download available drivers and firmware.
• Install or update the BIOS, if required.

Note: If you intend to install Axiom Path Manager software, refer to the appropriate AxiomONE Path Manager Installation Guide and Release Notes.
About Switch Zone for HBA Set Up (SAN Only)

If appropriate, follow the instructions from your switch vendor to set up zones to:

- Permit host HBA ports to access the Slammer ports.
- Segregate servers with different operating systems.
- Segregate servers with different security requirements.
Attach the Rack Doors and Panels

In this procedure, you reattach the front and back doors and both side panels to the rack. These steps help to ensure the security and proper cooling of Pillar Axiom components.

To reattach the doors on a rack:

1. Based on the type of door hinge, reassemble the hinges.
2. Reattach the doors.
3. Reattach the door grounding straps at the bottom of the doors.
4. Lock the front and back doors to the rack (optional).
Attach the Rack's Side Panels

1. Hang the top of the panel on the top of the rack frame and latch the panel to close it.
   
   **Important!** Be sure not to pinch any cables that might have strayed from their proper moorings.

2. Secure the panel appropriately using one of the following options:
   - Engage the latch handle(s) and snap the panel into place.
   - Screw the panels to the rack frame at the top and bottom.

3. Lock both side panels (optional).
CHAPTER 7

Initial Configuration

Pre-Configuration Checklist

This is a list of the information you need to know for configuration. Print out this list and check off each item as it is completed.

Table 9 Global system parameters

<table>
<thead>
<tr>
<th>Done</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Check the Pillar Axiom 500 Release Notes and the Pillar Data Systems Support Portal to see if there are any software updates available. Refer to the Pillar Axiom Administrator’s Guide for instructions on installing software updates.</td>
</tr>
</tbody>
</table>

GUI access

|      | Get the IP address of the Pilot (the default is 10.0.0.2) and the user ID and password from the Site Preparation Survey or from Pillar Data Systems. |

Global system parameters

|      | Get the IP address of your primary NTP server for synchronizing system time. |
|      | Decide on three IP addresses that are available to assign to the Pilot. |
|      | Know the management network submask and the IP address for the gateway. |
|      | Understand link aggregation and whether to use it for Slammer data paths. |
|      | To allow alerts to be e-mailed, you need the IP address of your e-mail server. |
|      | Get the Call-Home connection parameters and IP addresses from Pillar Data Systems. |
Table 9 Global system parameters (continued)

<table>
<thead>
<tr>
<th>Done</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NAS storage parameters</td>
</tr>
<tr>
<td></td>
<td>If you saved a performance profile (from another Pillar Axiom system), you must know where it is so you can browse to it.</td>
</tr>
<tr>
<td></td>
<td>Decide on an IP address that is available in your network for the File Server.</td>
</tr>
<tr>
<td></td>
<td>Know the data network submask and the IP address for the gateway. This should be a different network than the management network.</td>
</tr>
<tr>
<td></td>
<td>Know your virtual LAN ID, if you are using one.</td>
</tr>
<tr>
<td></td>
<td>Know the DNS domain name and DNS server IP addresses.</td>
</tr>
<tr>
<td></td>
<td>Understand enough about filesystems and storage to specify capacity, growth increment, type of redundancy, priority over other volumes, typical file size, random or sequential file access, and read or write I/O bias.</td>
</tr>
<tr>
<td></td>
<td>Understand file sharing for CIFS and NFS, including exporting, user accounts, and specifying allowed hosts or networks.</td>
</tr>
<tr>
<td></td>
<td>SAN storage parameters</td>
</tr>
<tr>
<td></td>
<td>Understand enough about SANs to specify capacity, type of redundancy, priority over other volumes, random or sequential file access, read or write I/O bias, and Clone LUN space requirements.</td>
</tr>
</tbody>
</table>
Start the Graphical User Interface (GUI)

Because this address is not routable, be sure that the browser host is on the local subnet.

The AxiomONE Storage Services Manager provides a graphical user interface (GUI) to manage the Pillar Axiom system. Access the GUI by connecting to the Pilot's high-availability IP address, which is 10.0.0.2.

1. Through a Web browser, connect to the Pilot IP address 10.0.0.2 (network mask is 255.255.255.0).

2. Use the following values to log in:
   - Login Name: administrator
   - Password: pillar

3. When prompted, enter a new password.

   **Note:** Get the password that is to be used from the *Site Preparation Survey*. Be sure that the Primary System Administrator also gets this password.

   **CAUTION** Do not lose this new password; otherwise, the system must be reset.

4. Click the OK button.

At this point, the system tests the cabling among the Slammers and Bricks. After the cable test, the system reports that all connections are OK or lists the connections that failed.
Reset the Primary System Administrator Password

If you forget the Primary System Administrator password, you can reset it.

1. Use a Type 1 Administrator account, if one exists, to reset the password. A Support Administrator cannot reset the Primary Administrator password.

2. If no Type 1 Administrator account is available, contact Technical Support for the encrypted file (for resetting the password), which may be placed in a USB key. Use the USB key as instructed.

**Note:** It is strongly recommended that you set up an additional Type 1 Administrator account when you install the system. A Type 1 Administrator can modify account passwords without knowing the previous password for any accounts.
Configure the System with the Configuration Wizard

The Configuration Wizard pages guide you through the manual steps to configure your system.

1. From the initial GUI screen, select Configuration Wizard.
2. From the Configuration Wizard initial page, click the Next button.
3. Select all three configuration tasks:

![Figure 52 Configuration Tasks page]

4. Click the Next button.

**Note:** If you intend to configure both NAS and SAN Slammers, run this wizard a second time, select only Storage Parameters, and specify a LUN instead of a filesystem (or the other way around).

Configure Global System Parameters

1. In the System Time page, enter the IP addresses of the primary Network Time Protocol (NTP) server and up to two alternate NTP servers (optional).

**Note:** If the time on a Pillar Axiom system is being controlled by a time server, the date and time should only be changed on that time server.
**Note:** If you are not using an NTP server, we recommend not changing the date by means of the GUI or CLI once the initial installation is complete and the system is operational. If you change the date on a Pilot or Slammer by more than 15 minutes, the NTP daemon will mistrust the request and exit.

2 Select the time zone that you want to define for the Pillar Axiom system, and click the Next button.

**Note:** If you do not set the system time, the Pillar Axiom system uses the default time set on the Pilot (Pacific Time).

Figure 53 System Time page

3 In the Management and Data Path Interfaces page, enter the System Name. This is the name of the management interface IP address and can be used with an external naming service to access the management interface by a host name rather than the IP address. This is not the host or NetBIOS name.
4 Select the Static IP Address option.

5 Enter a reachable management Default IP Address. (The default address of 10.0.0.2 cannot be routed.)

If you only enter the default address, the system automatically assigns the next two IP addresses in sequence as Pilot CU 0 and Pilot CU 1 addresses. For example, if you enter 129.214.10.10 as the default address, the system automatically assigns IP address 129.214.10.11 to Pilot CU 0 and 129.214.10.12 to Pilot CU 1. If those sequential addresses are not available, enter the desired values for the additional IP addresses in the fields for Pilot CU 0 and Pilot CU 1.

**Important!** All three addresses must be on the same subnet as the dynamically assigned public IP address; otherwise, the private interfaces may not work.

In the current release, the DHCP feature has the following behavior characteristics:

- Dynamically assigns only the public IP address of the Pilot.
- Locks the two private IP addresses.
- Retains DHCP settings during a Pilot failover.
- Does not reflect the updated IP address or the status of the DHCP setting in the GUI until the Pilot restarts or fails over.
• Updates the values correctly without a need to restart when you change back to static addresses.

If DHCP is enabled on the Pilot and DNS lookup is available on the management console, you can log in to the Pillar Axiom system using the system name rather than its IP address.

**Note:** Get the IP address that is to be used from the *Site Preparation Survey*. Be sure that the Primary System Administrator also gets this IP address.

**CAUTION** Do not lose this IP address; otherwise, the system must be reset.

6 Enter the subnet mask for your network and the IP address of the default gateway for the management interfaces. If you do not want the management interfaces to be reachable from anywhere other than the local subnet, leave the default gateway blank. However, you must enter a valid netmask.

7 Click the Next button. The Next button assigns the primary IP addresses and brings up the next dialog.

**Figure 55 Notification and Account Security Settings page**

8 Enter the Account Security values for session time-out period.

9 To receive alerts by email, check Enable Email and specify your Email server IP address.

10 Check Enable Automatic Recovery of Failed NAS Slammers if you want NAS Slammers to automatically fail back when a failed control unit is restored. If
you want to control when a recovery occurs, do not check this box. (SAN Slammers fail back automatically.)

Configure NAS Storage Parameters

If you do not have NAS storage, skip to Configure SAN Storage Parameters.

1. In the Storage Allocation and Quality of Service (QoS) page, select Filesystem from the Storage Type drop-down box.

2. Choose one of the following options to determine QoS performance:
   - Select an Application Category that best describes your storage use environment. Each category has certain default profile values that you can edit on the Capacity and Performance page (which is the next page the Wizard presents).
   - Select the Performance Profile for Oracle Automatic Storage Management if this Pillar Axiom system is connected to an Oracle system.

3. Click the Next button to configure this filesystem.

4. Enter the filesystem’s name as well as the capacity values.
5 To activate RAID 10 by setting file access to Random and the I/O Bias to Write.

The system defaults to RAID 5 otherwise.

6 To activate CloneFS Storage for this filesystem, check the allocation box and specify a maximum number of gigabytes to be used for CloneFS.

7 To specify SecureWORMfs for this filesystem, check the Retention Policy box. Select either the Standard or Compliance option for SecureWORMfs.

8 Click Next. If you checked the Retention Policy box you go to the Retention Policy Settings page. Otherwise you go to the File Sharing page in Step 11.

9 In the Retention Policy Settings page set the master retention period values.

10 Specify suitable scan times and click the Next button.

11 In the File Sharing page, select the type(s) of file sharing that you want for this filesystem, and click Next button.

12 If you are sharing to Windows (CIFS) users, the Shares page appears. Specify a share name and use just a back-slash (\) for the path. A new filesystem is empty, so there is no other path to specify. Check the Enabled option to activate the share.

13 If you are sharing with UNIX (NFS) users, the Exports page appears. Enter a back-slash (\) for the export path. The UID for anonymous is for a CIFS user with no matching user account. It is also for a root user on a client if the
filesystem is not exported as root access. A common value to use for this is -2.

14 Specify the Allowed Hosts as the destination for this filesystem export, and whether it should be exported as Read Only or Root Access.

15 Click Next to specify a NAS File Server.
   If you select this option, skip to Step 20.

16 To use an existing File Server, select it from the drop-down list and click Next. Use the View button to review details about the selected File Server.

17 To create a new File Server, select that option and click the Next button.

18 Enter a new File Server name and define the virtual interface (VIF) and Domain Name Server (DNS) for the File Server. The DNS domain specifies the domain to be searched.

19 Create an administrator account for the system. Set the Role to be Administrator 1 for this initial account. Additional accounts with lower privileges can be created later.

20 Review the parameter settings. If you want to make any changes, click the Previous button. When you are satisfied with the settings, click the Finish button to configure the Pillar Axiom system.
   If there are any invalid settings in your parameters, the wizard will open the related page and highlight the fields in red.

Configure SAN Storage Parameters

If you just configured NAS storage, run the Configuration Wizard a second time, and only specify Storage Parameters. You do not need to configure the global parameters or accounts again if they are already configured.

1 In the Storage Allocation and Quality of Service (QoS) page, select LUN from the Storage Type drop-down box.
2 Choose one of the following options to determine QoS performance:

- Select an Application Category that best describes your storage use environment. Each category has certain default profile values that you can edit on the Capacity and Performance page (which is the next page the Wizard presents).

- Select the Performance Profile for Oracle Automatic Storage Management if this Pillar Axiom system is connected to an Oracle system.

3 Click the Next button to configure this LUN.
4 Enter a LUN name and LUN number.

5 Specify the LUN capacity, redundancy, and performance attributes.

   **Note:** You can modify a LUN to update its capacity attributes at any time. You cannot change a LUN's redundancy and performance attributes after you create the LUN.

6 To activate the Clone LUN storage function, enter the amount of space to allocate.

7 Select your Access Protocols if you are using Fibre Channel, iSCSI, or both. If these protocols are not being used, leave these options blank.

8 Click the Next button to configure administrator accounts, unless you have already completed this step when configuring NAS parameters.

9 Create an administrator account for the system and set the Role to be Administrator 1 for this initial account.

   Otherwise, continue with Step 10. Additional accounts with lower privileges can be created later.

10 Review the parameter settings. If you want to make any changes, click the Previous button. When you are satisfied with the settings, click the Finish button to configure the Pillar Axiom system.

   If there are any invalid settings in your parameters, the wizard will open the related page and highlight the fields in red.
About AxiomONE Path Manager Installation (SAN Only)

To operate your SAN system, you may optionally install Pillar’s AxiomONE Path Manager (APM) drivers and software on your SAN host, which:

- Ensures your SAN host operating system does not interpret multiple paths as multiple disk drives.
- Provides path failover.
- Streamlines system management.

Important! Configure the LUNs on the Pillar Axiom before you install the AxiomONE Path Manager system software on the SAN host.

Complete the procedures in the appropriate AxiomONE Path Manager Installation Guide and Release Notes to install the AxiomONE Path Manager driver and software on the SAN host.
Expansion Planning

About Additional Slammers

We do not recommend adding a Slammer to an Pillar Axiom system while the system is in normal running status.

If the existing racks are full, you need additional racks and may have to move some Bricks to accommodate a second Slammer. See the hardware map in About Component Placement for One Slammer and SATA Bricks for more information.

Complete the Pre-Installation Checklist

1. Inventory the Slammer and installation components to make sure you have the correct cables and mounting hardware.

2. Before beginning the installation, check the status of the system to ensure that it is in proper status, as follows:
   a. All Fibre Channel Status LEDs on Slammer and Brick ports with connectors inserted are steady green, not amber or flashing green.
   b. The System Summary Status in the GUI is green for all components.
   c. No background tasks are running.
   d. There are no outstanding Administrator Actions.
   e. No filesystems or SAN LUNs are offline, degraded, or in conservative mode.

Install the Slammer

1. Place the Pillar Axiom system in Shutdown Status with the GUI or command line interface (CLI) and verify that the system has successfully shut down.

2. Physically add the new Slammer to the system, as described in About Slammer Installation.
3 Connect the Ethernet and Fibre Channel cables following the instructions in the *Pillar Axiom 500 SSF Cabling Reference*.

4 Attach the Slammer power connections to separate PDUs as shown in *Connect Power Cables*.

5 Restart the Pillar Axiom system. Carefully observe the System Health Status to ensure that the Slammers proceed through startup and achieve a normal status.

6 Check that the system recognizes the new Slammer. That is, the system adds it to the configuration and performs a successful startup to normal status, with any firmware updates to the Slammer CU completing successfully.

7 Check the Fibre Channel status LEDs on all ports on all Slammers and Bricks. If there is a FC cable connected, the associated port status LED should be solid green and not amber or blinking green.
**Appendix A Slammer LED Startup Progress Codes**

**About LED Startup Codes**

When a Slammer is powered on, it goes through a sequence of actions. Generally, the time to finish these actions for a new installation is about 12 minutes.

The time to start up your system may be shorter or longer, depending on the number of configured entities (filesystems, LUNs, Snap FSs, Snap LUNs, quotas, and so on) and, to some degree, on the configuration of Slammers and Bricks.

Slammers cannot complete the startup sequence without the Pilot being powered on and functioning.

While a Slammer performs startup diagnostics and then waits for its runtime image to download from the Pilot:

- The Fault LED (FLT) is off.
- The Activity LED (ACT) is green and blinks fast.
- The Status LED (ST) is green and blinks slowly.

During the remainder of the startup, FLT and ACT are off while ST slowly blinks amber once each second. During this time, the GUI shows the Slammer to be in "booting 0xnnnnn" status while the Pilot initializes the Slammer’s data services components.

When the Slammer successfully completes the startup sequence, ST is steady green.

**Tip:** If the front bezel Fault (FLT) LED is on steady and no other fault indicators on the Slammer are lit, the bezel may not be properly seated. Slammers always light FLT when the bezel is off.

If the Slammer halts during startup, the three LEDs on the back of the chassis (FLT, ACT, and ST) or the three LEDs on the bezel (Status, Activity, and Fault) help you identify where the Slammer halted in the startup sequence.
Slammer LED Codes

The Slammer bezel has Fault, Status, and Activity LEDs that can display various colors and blink rates. These LEDs also appear on the private interface module at the back of the Slammer chassis, and are labeled FLT (Fault), ACT (Activity), and ST (Status).

These LEDs can:

• Be green or amber.
• Be on or off.
• Be steady, with no blinks.
• Blink rapidly—slightly more than two blinks per sec (2.375 hz).
• Blink slowly—one blink per 1.5 sec (0.67 hz).

The configuration of all three LEDs can be translated into a 3-digit progress code. Use this code to identify the cause of failure in the table in LED Code Translation.
LED Code Translation

The first digit of a startup progress code is determined by the color and blink rate of the FLT LED. Use the information in the following table to determine the first digit of this code.

Table 10 Code translation for the Fault LED

<table>
<thead>
<tr>
<th>LED color</th>
<th>Blink rate</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>Off</td>
<td>0</td>
</tr>
<tr>
<td>Amber</td>
<td>Steady</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Rapid</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Slow</td>
<td>3</td>
</tr>
</tbody>
</table>

The second digit of the startup progress code is determined by the color and blink rate of the Activity LED. Use the information in the following table to determine the second digit of this code.

Table 11 Code translation for the Activity LED

<table>
<thead>
<tr>
<th>LED color</th>
<th>Blink rate</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>Off</td>
<td>0</td>
</tr>
<tr>
<td>Amber</td>
<td>Steady</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Rapid</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Slow</td>
<td>4</td>
</tr>
<tr>
<td>Green</td>
<td>Steady</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Rapid</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Slow</td>
<td>6</td>
</tr>
</tbody>
</table>

The third digit of the startup progress code is determined by the color and blink rate of the Status LED. Use the information in the following table to determine the third digit of this code.
### Table 12 Code translation for the Status LED

<table>
<thead>
<tr>
<th>LED color</th>
<th>Blink rate</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>Off</td>
<td>0</td>
</tr>
<tr>
<td>Amber</td>
<td>Steady</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Rapid</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Slow</td>
<td>4</td>
</tr>
<tr>
<td>Green</td>
<td>Steady</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Rapid</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Slow</td>
<td>6</td>
</tr>
</tbody>
</table>

For example, the following LED configuration represents a progress code of 111, which means that the simple memory test failed on the Slammer:

- FLT—steady amber
- ACT—steady amber
- ST—steady amber
LED Halt Codes

The following table describes the meaning of the halt codes as indicated by the LEDs.

**Note:** The software modules in the following table are defined as follows:

- Boot Block is a software module that contains initialization routines, which include Preferred and Alternate Boot Page validation.
- MPOST is manufacturing POST and is for testing the motherboard.
- Preferred Boot Page is the preferred runtime start-up code.
- Alternate Boot Page is the safe (or backup) start-up code. Both the Preferred Boot Page and the Alternate Boot Page are alternately updateable in the field. The Alternate Boot Page should ensure that the Slammer can start up even when the Preferred Boot Page is corrupted.

<table>
<thead>
<tr>
<th>Code</th>
<th>Software module</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>000</td>
<td>Boot Block</td>
<td>CPU did not start to fetch code yet.</td>
</tr>
<tr>
<td>056</td>
<td></td>
<td>The Slammer control unit (CU) PROM has completed startup diagnostics and is waiting for the software to be downloaded from the Pilot.</td>
</tr>
<tr>
<td>102</td>
<td></td>
<td>Ready to initialize memory.</td>
</tr>
<tr>
<td>110</td>
<td></td>
<td>Installed memory is unsupported.</td>
</tr>
<tr>
<td>103</td>
<td></td>
<td>Ready to initialize DQS settings.</td>
</tr>
<tr>
<td>111</td>
<td></td>
<td>Simple memory test failed.</td>
</tr>
<tr>
<td>104</td>
<td></td>
<td>Ready to check preferred boot page CRC. If CRC is OK, control transfers to preferred boot page; otherwise, alternate boot page CRC is checked. If CRC is OK, control transfers to alternate boot page; otherwise, start-up will fail.</td>
</tr>
</tbody>
</table>
### Table 13 Slammer LED halt codes (continued)

<table>
<thead>
<tr>
<th>Code</th>
<th>Software module</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>F</strong></td>
<td><strong>A</strong></td>
<td><strong>S</strong></td>
</tr>
<tr>
<td>1 1 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 6 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 6 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 1 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 4 2</td>
<td>MPOST/Monitor</td>
<td></td>
</tr>
<tr>
<td>2 3 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 4 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 0 0</td>
<td>Preferred or Alternate Boot Page</td>
<td></td>
</tr>
<tr>
<td>2 0 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 0 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 1 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 1 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 1 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 1 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 0 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 3 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 4 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 4 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 5 0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 13 Slammer LED halt codes (continued)

<table>
<thead>
<tr>
<th>Code</th>
<th>Software module</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>F A S</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 5 2</td>
<td></td>
<td>Memory DIMMs are different.</td>
</tr>
<tr>
<td>2 5 4</td>
<td></td>
<td>Failed to read memory configuration from EEPROM.</td>
</tr>
<tr>
<td>2 5 6</td>
<td></td>
<td>Ready to do full memory test.</td>
</tr>
<tr>
<td>2 6 0</td>
<td></td>
<td>Full memory test failed.</td>
</tr>
<tr>
<td>3 6 6</td>
<td></td>
<td>Exiting Loader; entering netboot.</td>
</tr>
<tr>
<td>3 X X</td>
<td></td>
<td>LED startup progress code reserved for the OS (where X is not 6).</td>
</tr>
</tbody>
</table>

Once the Slammer reaches state 3XX, where the FLT LED is blinking slowly, all further control of the startup process is managed by the Pilot. When the Pilot assumes control of the Slammer, the status LED begins blinking slowly amber until the software components are all successfully brought online.
Appendix B Safety Statements

Introduction to Safety Statements

For the Pillar Axiom storage system, this appendix lists safety statements to provide specific warning and cautionary notices about the electrical and weight properties that are associated with a Pillar Axiom system and its hardware components.
Safety Statements

The following safety statements include all hazard notices, in all pertinent languages.

**Important!** Procedures listed in the body of this document assume that the electrical characteristics of the power supply to which Pillar Axiom components are connected comply with the technical specifications for those components.

For electrical characteristics of Pillar Axiom components, see Pillar Axiom Hardware Specifications.
Warning Notices

This hazard symbol means warning. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards that are involved with electrical circuitry and be familiar with standard practices for preventing accidents.

Electrical Warning in Other Languages

Table 14 Electrical warning in other languages

<table>
<thead>
<tr>
<th>Language</th>
<th>Electrical Warning in Other Languages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waarschuwing</td>
<td>Dit waarschuwingssymbool betekent gevaar. U verkeert in een situatie die lichamelijk letsel kan veroorzaken. Voordat u aan enige apparatuur gaat werken, dient u zich bewust te zijn van de bij elektrische schakelingen betrokken risico's en dient u op de hoogte te zijn van standaard maatregelen om ongelukken te voorkomen.</td>
</tr>
<tr>
<td>Varoitus</td>
<td>Tämä varoitusmerkki merkitsee vaaraa. Olet tilanteessa, joka voi johtaa ruumiinvammaan. Ennen kuin työskentelet minkään laitteiston parissa, ota selvää sähkökytkentöihin liittyvistä vaaroista ja tavanomaisista onnettomuuksien ehkäisykeinoista.</td>
</tr>
<tr>
<td>Attention</td>
<td>Ce symbole d’avertissement indique un danger. Vous vous trouvez dans une situation pouvant causer des blessures ou des dommages corporels. Avant de travailler sur un équipement, soyez conscient des dangers posés par les circuits électriques et familiarisez-vous avec les procédures couramment utilisées pour éviter les accidents.</td>
</tr>
<tr>
<td>Avvertenza</td>
<td>Questo simbolo di avvertenza indica un pericolo. La situazione potrebbe causare infortuni alle persone. Prima di lavorare su qualsiasi apparecchiatura, occorre conoscere i pericoli relativi ai circuiti elettrici ed essere al corrente delle pratiche standard per la prevenzione di incidenti.</td>
</tr>
</tbody>
</table>
Table 14 Electrical warning in other languages  (continued)

<table>
<thead>
<tr>
<th>Language</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advarsel</td>
<td>Dette varselsymbolet betyr fare. Du befinner deg i en situasjon som kan føre til personskade. Før du utfører arbeid på utstyr, må du være oppmerksom på de faremomentene som elektriske kretser innebærer, samt gjøre deg kjent med vanlig praksis når det gjelder å unngå ulykker.</td>
</tr>
<tr>
<td>Aviso</td>
<td>Este símbolo de aviso indica perigo. Encontra-se numa situação que lhe poderá causar danos físicos. Antes de começar a trabalhar com qualquer equipamento, familiarize-se com os perigos relacionados com circuitos eléctricos, e com quaisquer práticas comuns que possam prevenir possíveis acidentes.</td>
</tr>
<tr>
<td>Advertencia</td>
<td>Este símbolo de aviso significa peligro. Existe riesgo para su integridad física. Antes de manipular cualquier equipo, considerar los riesgos que entraña la corriente eléctrica y familiarizarse con los procedimientos estándar de prevención de accidentes.</td>
</tr>
</tbody>
</table>

**Warning**  
Do not work on the system or connect or disconnect cables during periods of lightning activity.

**Warning**  
When removing a power supply, do not touch the power supply when the power cord is connected. For systems with a power switch, line voltages are present within the power supply even when the power switch is off and the power cord is connected. For systems without a power switch, line voltages are present within the power supply when the power cord is connected.

**Warning**  
The power supply cord is used as the main disconnect device. Ensure that the socket outlet is located or installed near the equipment and is easily accessible.

**Warning**  
When working on a chassis or near power supplies, use extreme caution because line voltages may be present within the chassis.
Warning Ultimate disposal of this product should be handled according to all national laws and regulations.

Warning Some equipment is connected to power lines. Before you work on this equipment, remove all jewelry that contains metal. Such jewelry includes rings, necklaces, and watches. Metal objects heat up when connected to power and ground. Hot metal objects can cause serious burns or weld the metal object to the terminals.

Warning Only qualified personnel should install or replace this equipment.

Warning Secure all power cabling when you install this unit to avoid disturbing field-wiring connections.

Warning Do not overload the circuit when you connect components to the power supply.

Warning A voltage mismatch can cause equipment damage and may pose a fire hazard. If the voltage indicated on the label differs from the power outlet voltage, do not connect the chassis to that receptacle.

Warning To avoid electric shock, do not connect safety extra-low voltage (SELV) circuits to telephone-network voltage (TNV) circuits. LAN ports contain SELV circuits, and WAN ports contain TNV circuits. Some LAN and WAN ports both use RJ-45 connectors. Use caution when connecting cables.

Warning Incorrect connection of this equipment to a general purpose outlet could result in a hazardous situation.

Warning The Pillar Axiom storage system operates at high voltages. To protect against physical harm, power off the system whenever possible during installation.

Warning Never block the inlet and outlet holes in the chassis components. Sufficient air circulation is required for the components to operate properly and to avoid a fire hazard. Do not push objects of any kind into the ventilation holes. Such action could result in fire or electrical shock. Keep all liquids away from hardware components.
Warning

Ensure that component distribution in the rack is balanced. Follow the hardware placement map to ensure this balance. Uneven distribution can cause hazardous instability. The rack must have stabilization plates or anti-tip brackets installed so the rack does not tip when you install a component.

Lightning Activity Warning

DANGER

Do not work on the system or connect or disconnect cables during periods of lightning activity.

Lightning Warning in Other Languages

Table 15 Lightning warning in other languages

<table>
<thead>
<tr>
<th>Language</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waarschuwing</td>
<td>Tijdens onweer dat gepaard gaat met bliksem, dient u niet aan het systeem te werken of kabels aan te sluiten of te ontkoppelen.</td>
</tr>
<tr>
<td>Varoitus</td>
<td>Älä työskentele jä rjestelmä n parissa ä lä kä yhdistä tai irrota kaapeleita ukkosilmalla.</td>
</tr>
<tr>
<td>Attention</td>
<td>Ne pas travailler sur le système ni brancher ou débrancher les câbles pendant un orage.</td>
</tr>
<tr>
<td>Warnung</td>
<td>Arbeiten Sie nicht am System und schließen Sie keine Kabel an bzw. trennen Sie keine ab, wenn es gewittert.</td>
</tr>
<tr>
<td>Avvertenza</td>
<td>Non lavorare sul sistema o collegare oppure scollegare i cavi durante un temporale con fulmini.</td>
</tr>
<tr>
<td>Advarsel</td>
<td>Utfør aldrig arbeid på systemet, eller koble kabler til eller fra systemet når det tordner eller lyner.</td>
</tr>
<tr>
<td>Aviso</td>
<td>Não trabalhe no sistema ou ligue e desligue cabos durante períodos de mau tempo (trovoada).</td>
</tr>
<tr>
<td>Advertencia</td>
<td>No operar el sistema ni conectar o desconectar cables durante el transcurso de descargas eléctricas en la atmósfera.</td>
</tr>
<tr>
<td>Warning</td>
<td>Vid å ska skall du aldrig utföra arbete på systemet eller ansluta eller koppla loss kablar.</td>
</tr>
</tbody>
</table>
Power Supply Warning

When removing a power supply, do not touch the power supply when the power cord is connected. For systems with a power switch, line voltages are present within the power supply even when the power switch is off and the power cord is connected. For systems without a power switch, line voltages are present within the power supply when the power cord is connected.

Power Supply Warning in Other Languages

<table>
<thead>
<tr>
<th>Language</th>
<th>Warning Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waarschuwing</td>
<td>U dient de voeding niet aan te raken zolang het netsnoer aangesloten is. Bij systemen met een stroomschakelaar zijn er lijnspanningen aanwezig in de voeding, zelfs wanneer de stroomschakelaar uitgeschakeld is en het netsnoer aangesloten is. Bij systemen zonder een stroomschakelaar zijn er lijnspanningen aanwezig in de voeding wanneer het netsnoer aangesloten is.</td>
</tr>
<tr>
<td>Varaudos</td>
<td>Älä kosketa virtaläädettä virtajohdon ollessa kytkeyttynä. Virrankatkaisimella varustetuissa järjestelmissä on virtaläädettä hteen sisäillä äljellä verkkojää nnite, vaikka virrankatkaisin on katkaistu-asennossa virtajohdon ollessa kytkeyttynä. Järjestelmissä, joissa ei ole virrankatkaisinta, on virtaläädettä hteen sisäillä verkkojää nnite, kun virtajohto on kytkeyttynä.</td>
</tr>
<tr>
<td>Attention</td>
<td>Ne pas toucher le bloc d'alimentation quand le cordon d'alimentation est branché. Avec les systèmes munis d'un commutateur marche-arrêt, des tensions de ligne sont présentes dans l'alimentation quand le cordon est branché, même si le commutateur est à l'arrêt. Avec les systèmes sans commutateur marche-arrêt, l'alimentation est sous tension quand le cordon d'alimentation est branché.</td>
</tr>
<tr>
<td>Warnung</td>
<td>Berü hren Sie das Netzgerät nicht, wenn das Netzkabel angeschlossen ist. Bei Systemen mit Netzschalter liegen Leitungsspannungen im Netzgerät vor, wenn das Netzkabel angeschlossen ist, auch wenn das System ausgeschaltet ist.</td>
</tr>
</tbody>
</table>
### Table 16 Power supply warning in other languages (continued)

<table>
<thead>
<tr>
<th>Language</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bei</strong></td>
<td>Bei Systemen ohne Netzschalter liegen Leitungsspannungen im Netzgerät vor, wenn das Netzkabel angeschlossen ist.</td>
</tr>
<tr>
<td><strong>Avvertenza</strong></td>
<td>Non toccare l'alimentatore se il cavo dell'alimentazione è collegato. Per i sistemi con un interruttore di alimentazione, tensioni di linea sono presenti all'interno dell'alimentatore anche quando l'interruttore di alimentazione è in posizione di disattivazione (off), se il cavo dell'alimentazione è collegato. Per i sistemi senza un interruttore, tensioni di linea sono presenti all'interno dell'alimentatore quando il cavo di alimentazione è collegato.</td>
</tr>
<tr>
<td><strong>Advarsel</strong></td>
<td>Berør ikke strømforsyningsenheten nå r strømledningen er tilkoblet. I systemer som har en strømmbryter, er det spenning i strømforsyningsenheten selv om strømmbryteren er slått av og strømledningen er tilkoblet. Nå r det gjelder systemer uten en strømmbryter, er det spenning i strømforsyningsenheten nå r strømledingen er tilkoblet.</td>
</tr>
<tr>
<td><strong>Aviso</strong></td>
<td>Não toque na unidade abastecedora de energia quando o cabo de alimentação estiver ligado. Em sistemas com interruptor, a corrente elétrica estará presente na unidade abastecedora, sempre que o cabo de alimentação de energia estiver ligado, mesmo quando o interruptor se encontrar desligado. Para sistemas sem interruptor, a tensão elétrica dentro da unidade abastecedora só estará presente quando o cabo de alimentação estiver ligado.</td>
</tr>
<tr>
<td><strong>Advertencia</strong></td>
<td>No tocar la fuente de alimentación mientras el cable esté enchufado. En sistemas con interruptor de alimentación, hay voltajes de línea dentro de la fuente, incluso cuando el interruptor esté en Apagado (OFF) y el cable de alimentación esté enchufado. En sistemas sin interruptor de alimentación, hay voltajes de línea en la fuente cuando el cable está enchufado.</td>
</tr>
<tr>
<td><strong>Warning</strong></td>
<td>Vidrö inte strömförsörjningsenheten nå r nå tssladden är r ansluten. För system med strömbrytare finns det nå tspå nning i strömförsörjningsenheten ä ven nå r strömmen har slagits av men nå tssladden är r ansluten. För system utan strömbrytare finns det nå tspå nning i strömförsörjningsenheten nå r nå tssladden är r ansluten.</td>
</tr>
</tbody>
</table>
Main Power Disconnect Warning

⚠️ DANGER The power supply cord is used as the main disconnect device. Ensure that the socket outlet is located or installed near the equipment and is easily accessible.

Power Disconnect Warning in Other Languages

Table 17 Power disconnect warning in other languages

<table>
<thead>
<tr>
<th>Language</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attention</td>
<td>Le cordon d'alimentation est utilisé comme interrupteur général. La prise de courant doit être située ou installée à proximité de l'équipement et être facile d'accès.</td>
</tr>
</tbody>
</table>

Installation Warning

⚠️ DANGER Read the installation instructions before you connect the system to its power source.

Table 18 Installation warning in other languages

<table>
<thead>
<tr>
<th>Language</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waarschuwing</td>
<td>Raadpleeg de installatie-aanwijzingen voordat u het systeem met de voeding verbindt.</td>
</tr>
<tr>
<td>Varoitus</td>
<td>Lue asennusohjeet ennen järjestelmän yhdistämistä virtalähettelyyn.</td>
</tr>
<tr>
<td>Attention</td>
<td>Avant de brancher le système sur la source d'alimentation, consulter les directives d'installation.</td>
</tr>
<tr>
<td>Warnung</td>
<td>Lesen Sie die Installationsanweisungen, bevor Sie das System an die Stromquelle anschließen.</td>
</tr>
<tr>
<td>Avvertenza</td>
<td>Consultare le istruzioni di installazione prima di collegare il sistema all'alimentatore.</td>
</tr>
</tbody>
</table>
### Table 18 Installation warning in other languages (continued)

<table>
<thead>
<tr>
<th>Language</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advarsel</td>
<td>Les installasjonsinstruksjonene før systemet kobles til strømkilden.</td>
</tr>
<tr>
<td>Aviso</td>
<td>Leia as instruções de instalação antes de ligar o sistema à sua fonte de energia.</td>
</tr>
<tr>
<td>Advertencia</td>
<td>Ver las instrucciones de instalación antes de conectar el sistema a la red de alimentación.</td>
</tr>
<tr>
<td>Varning</td>
<td>Läs installationsanvisningarna innan du kopplar systemet till dess strömförsörjningsenhet.</td>
</tr>
</tbody>
</table>

### Power Disconnect Warning

**DANGER** When working on a chassis or near power supplies, follow the Guided Maintenance procedures in the AxiomONE Storage Services Manager for instructions on how to work with and around power supplies. Use extreme caution because line voltages may be present within the chassis.

### Warning Statement for Norway and Sweden

**Table 19 Warnings for Norway and Sweden**

<table>
<thead>
<tr>
<th>Language</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advarsel</td>
<td>Apparatet skal kobles til en jordet stikkontakt.</td>
</tr>
<tr>
<td>Varning</td>
<td>Apparaten skall anslutas till jordat nättuttag.</td>
</tr>
</tbody>
</table>

### Restricted Access Area Warning

**DANGER** This unit is intended for installation in restricted access areas. A restricted access area is where access can only be gained by service personnel through the use of a special tool, lock and key, or other means of security, and is controlled by the authority responsible for the location.
## Restricted Access Warning in Other Languages

<table>
<thead>
<tr>
<th>Language</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waarschuwing</td>
<td>Dit toestel is bedoeld voor installatie op plaatsen met beperkte toegang. Een plaats met beperkte toegang is een plaats waar toegang slechts door servicepersoneel verkregen kan worden door middel van een speciaal instrument, een slot en sleutel, of een ander veiligheidsmiddel, en welke beheerd wordt door de overheidsinstantie die verantwoordelijk is voor de locatie.</td>
</tr>
<tr>
<td>Varoitus</td>
<td>Tä mä laite on tarkoitetettu asennettavaksi paikkaan, johon pä ä sy on rajoitettua. Paikka, johon pä ä sy on rajoitettua, tarkoittaa paikkaa, johon vain huoltohenkilöstö pä ä see jonkin erikoistyökalun, lukkoop sopivan avaimen tai jonkin muun turvalaitteen avulla ja joka on paikasta vastuussa olevien toimivaltaisten henkilöiden valvoma.</td>
</tr>
<tr>
<td>Attention</td>
<td>Cet appareil est à installer dans des zones d’accès réservé. Ces dernières sont des zones auxquelles seul le personnel de service peut accéder en utilisant un outil spécial, un mécanisme de verrouillage et une clé, ou tout autre moyen de sécurité. L’accès aux zones de sécurité est sous le contrôle de l’autorité responsable de l'emplacement.</td>
</tr>
<tr>
<td>Avvertenza</td>
<td>Questa unità deve essere installata in un’area ad accesso limitato. Un’area ad accesso limitato è un’area accessibile solo a personale di assistenza tramite un’attrezzo speciale, lucchetto, o altri dispositivi di sicurezza, ed è controllata dall’autorità responsabile della zona.</td>
</tr>
<tr>
<td>Advarsel</td>
<td>Denne enheten er laget for installasjon i områ der med begrenset adgang. Et områ de med begrenset adgang gir kun adgang til servicepersonale som bruker et spesielt verktø y, lå s og nø kkel, eller en annen sikkerhetsanordning, og det kontrolleres av den autoriteten som er ansvarlig for områ det.</td>
</tr>
</tbody>
</table>
Table 20 Restricted access warning in other languages (continued)

<table>
<thead>
<tr>
<th>Language</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aviso</td>
<td>Esta unidade foi concebida para instalação em áreas de acesso restrito. Uma área de acesso restrito é uma área à qual apenas tem acesso o pessoal de serviço autorizado, que possua uma ferramenta, chave e fechadura especial, ou qualquer outra forma de segurança. Esta área é controlada pela autoridade responsável pelo local.</td>
</tr>
<tr>
<td>Advertencia</td>
<td>Esta unidad ha sido diseñada para instalarse en áreas de acceso restringido. Área de acceso restringido significa un área a la que solamente tiene acceso el personal de servicio mediante la utilización de una herramienta especial, cerradura con llave, o algún otro medio de seguridad, y que está bajo el control de la autoridad responsable del local.</td>
</tr>
<tr>
<td>Varning</td>
<td>Denna enhet är avsedd för installation i områden med begränsat tillträde. Ett område med begränsat tillträde får endast tillträde av servicepersonal med ett speciellt verktyg, lås och nyckel, eller annan så kerhetsanordning, och kontrolleras av den auktoritet som ansvarar för området.</td>
</tr>
</tbody>
</table>

Product Disposal Warning

⚠️ DANGER ⚠️ Ultimate disposal of this product should be handled according to all national laws and regulations.

Product Disposal Warning in Other Languages

Table 21 Product disposal warning in other languages

<table>
<thead>
<tr>
<th>Language</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waarschuwing</td>
<td>Dit produkt dient volgens alle landelijke wetten en voorschriften te worden afgedankt.</td>
</tr>
<tr>
<td>Varoitus</td>
<td>Tä mää tuotteen lopullisesta hä vittä misestä tulee huolehtia kaikkia valtakunnallisia lakeja ja sä ä nnöksiä noudattaen.</td>
</tr>
<tr>
<td>Attention</td>
<td>La mise au rebut définitive de ce produit doit être effectuée conformément à toutes les lois et réglementations en vigueur.</td>
</tr>
</tbody>
</table>
Table 21 Product disposal warning in other languages (continued)

<table>
<thead>
<tr>
<th>Language</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warnung</td>
<td>Dieses Produkt muß den geltenden Gesetzen und Vorschriften entsprechend entsorgt werden.</td>
</tr>
<tr>
<td>Avvertenza</td>
<td>L’eliminazione finale di questo prodotto deve essere eseguita osservando le normative italiane vigenti in materia.</td>
</tr>
<tr>
<td>Advarsel</td>
<td>Endelig disponering av dette produktet må skje i henhold til nasjonale lover og forskrifter.</td>
</tr>
<tr>
<td>Aviso</td>
<td>A descartagem final deste produto deverá ser efectuada de acordo com os regulamentos e a legislação nacional.</td>
</tr>
<tr>
<td>Advertencia</td>
<td>El desecho final de este producto debe realizarse según todas las leyes y regulaciones nacionales.</td>
</tr>
<tr>
<td>Varning</td>
<td>Slutlig kassering av denna produkt bör skötas i enlighet med landets alla lagar och föreskrifter.</td>
</tr>
</tbody>
</table>

Jewelry Removal Warning

⚠️ DANGER

Some equipment is connected to power lines. Before you work on this equipment, remove all jewelry that contains metal. Such jewelry includes rings, necklaces, and watches. Metal objects heat up when connected to power and ground. Hot metal objects can cause serious burns or weld the metal object to the terminals.

Jewelry Removal Warning in Other Languages

Table 22 Jewelry removal warning in other languages

<table>
<thead>
<tr>
<th>Language</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waarschuwing</td>
<td>Alvorens aan apparatuur te werken die met elektrische leidingen is verbonden, sieraden (inclusief ringen, kettingen en horloges) verwijderen. Metalen voorwerpen worden warm wanneer ze met stroom en aarde zijn verbonden, en kunnen ernstige brandwonden veroorzaken of het metalen voorwerp aan de aansluitklemmen lassen.</td>
</tr>
<tr>
<td>Varoitus</td>
<td>Ennen kuin työskentelet voimavirtajohtoihin kytkettyjen laitteiden parissa, ota pois kaikki korut (sormukset, kaulakorut)</td>
</tr>
</tbody>
</table>
### Table 22 Jewelry removal warning in other languages (continued)

<table>
<thead>
<tr>
<th>Language</th>
<th>Warning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finnish</td>
<td>Ja kellot mukaan lukien). Metalliesineet kuumenevat, kun ne ovat yhteydessä sähkövirran ja maan kanssa, ja ne voivat aiheuttaa vakavia palovammoja tai hitsata metalliesineet kiinni liitäntä napoihin.</td>
</tr>
<tr>
<td>French</td>
<td>Attention Avant d’accéder à cet équipement connecté aux lignes électriques, ô ter tout bijou (anneaux, colliers et montres compris). Lorsqu’ils sont branchés à l’alimentation et reliés à la terre, les objets métalliques chauffent, ce qui peut provoquer des blessures graves ou souder l’objet métallique aux bornes.</td>
</tr>
<tr>
<td>German</td>
<td>Warnung Vor der Arbeit an Gerät en, die an das Netz angeschlossen sind, jeglichen Schmuck (einschließlich Ringe, Ketten und Uhren) abnehmen. Metallgegenstände erhitzen sich, wenn sie an das Netz und die Erde angeschlossen werden, und können schwere Verbrennungen verursachen oder an die Anschlußklemmen angeschweißt werden.</td>
</tr>
<tr>
<td>Italian</td>
<td>Avvertenza Prima di intervenire su apparecchiature collegate alle linee di alimentazione, togliersi qualsiasi monile (inclusi anelli, collane, braccialetti ed orologi). Gli oggetti metallici si riscaldano quando sono collegati tra punti di alimentazione e massa: possono causare ustioni gravi oppure il metallo può saldarsi ai terminali.</td>
</tr>
<tr>
<td>Norwegian</td>
<td>Advarsel Fjern alle smykker (inkludert ringer, halskjeder og klokker) før du skal arbeide på utstyr som er koblet til kraftledninger. Metallobjekter som er koblet til kraftledninger og jord blir svært varme og kan forårsake alvorlige branntskader eller smelte fast til polene.</td>
</tr>
<tr>
<td>Portuguese</td>
<td>Aviso Antes de trabalhar em equipamento que esteja ligado a linhas de corrente, retire todas as jóias que estiver a usar (incluindo anéis, fios e relógios). Os objectos metálicos aquecerão em contacto com a corrente e em contacto com a ligação à terra, podendo causar queimaduras graves ou ficarem soldados aos terminais.</td>
</tr>
<tr>
<td>Spanish</td>
<td>Advertencia Antes de operar sobre equipos conectados a líneas de alimentación, quítense las joyas (incluidos anillos, collares y relojes). Los objetos de metal se calientan cuando se conectan a la alimentación y a tierra, lo que puede causar quemaduras graves o que los objetos metálicos queden soldados a los bornes.</td>
</tr>
<tr>
<td>Swedish</td>
<td>Varning Tag av alla smycken (inkusive ringar, halsband och armbandsur) innan du arbetar på utrustning som är kopplad till kraftledningar. Metallobjekt hettas upp när de kopplas ihop med</td>
</tr>
</tbody>
</table>
Qualified Personnel Warning

DANGER Only qualified personnel should install or replace this equipment.

Table 23 Qualified personnel warning in other languages

<table>
<thead>
<tr>
<th>Language</th>
<th>Warning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waarschuwing</td>
<td>Installatie en reparaties mogen uitsluitend door getraind en bevoegd personeel uitgevoerd worden.</td>
</tr>
<tr>
<td>Varoitus</td>
<td>Ainoastaan koulutettu ja pä tevä henkilökunta saa asentaa tai vaihtaa tät mä n laitteet.</td>
</tr>
<tr>
<td>Avertissement</td>
<td>Tout installation ou remplacement de l'appareil doit être réalisé par du personnel qualifié et compétent.</td>
</tr>
<tr>
<td>Achtung</td>
<td>Gerät nur von geschultem, qualifiziertem Personal installieren oder auswechseln lassen.</td>
</tr>
<tr>
<td>Avvertenza</td>
<td>Solo personale addestrato e qualificato deve essere autorizzato ad installare o sostituire questo apparecchio.</td>
</tr>
<tr>
<td>Advarsel</td>
<td>Kun kvalifisert personell med riktig opplæring bør montere eller bytte ut dette utstyret.</td>
</tr>
<tr>
<td>Aviso</td>
<td>Este equipamento deverá ser instalado ou substituí do apenas por pessoal devidamente treinado e qualificado.</td>
</tr>
<tr>
<td>Atención</td>
<td>Estos equipos deben ser instalados y reemplazados exclusivamente por personal técnico adecuadamente preparado y capacitado.</td>
</tr>
<tr>
<td>Varning</td>
<td>Denna utrustning ska endast installeras och bytas ut av utbildad och kvalificerad personal.</td>
</tr>
</tbody>
</table>
Warning Statement for Finland

Table 24 Warning statement for Finland

| Varoitus       | Alleviates ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Ää katso sääteeseen. |

Warning Statement for Sweden

Table 25 Warning statement for Sweden

| Warning       | Osynlig laserstråling när denna del är öppen och förrutning är urkopplad. Rikta inte blicken in mot strålen. |

Power Cabling Warning

⚠️ DANGER Secure all power cabling when you install this unit to avoid disturbing field-wiring connections.

Power Cabling Warning in Other Languages

Table 26 Power cabling warning in other languages

<table>
<thead>
<tr>
<th>Waarschuwing</th>
<th>Zet alle stroomkabels vast wanneer dit toestel wordt geïnstalleerd om te voorkomen dat de verbindingen van de veldbedrading worden verstoord.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Varoitus</td>
<td>Kiinnitä kaikki voimakaapelit tiukkaan tätä laitetta asentaessasi, jotta vältä t Kentää johdinkytkönen vioittumista.</td>
</tr>
<tr>
<td>Attention</td>
<td>Lors de l'installation de cet appareil, fixer tous les câbles d'alimentation pour éviter de provoquer des perturbations aux raccordements des câbles propres au site.</td>
</tr>
</tbody>
</table>
### Table 26 Power cabling warning in other languages (continued)

<table>
<thead>
<tr>
<th>Language</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warnung</td>
<td>Bei der Installation dieser Einheit die Netzverkabelung befestigen, um die Störung von Feldkabelanschlüssen zu vermeiden.</td>
</tr>
<tr>
<td>Avvertenza</td>
<td>In fase di installazione dell'unità, assicurare tutti i cablaggi di alimentazione per evitare di alterare i collegamenti degli avvolgimenti di campo.</td>
</tr>
<tr>
<td>Advarsel</td>
<td>Når denne enheten installeres, må alle kraftledninger sikres for å unngå at feltkabelkoblingene forstyrres.</td>
</tr>
<tr>
<td>Aviso</td>
<td>Para evitar problemas com as ligações de rede de campanha, prenda todos os cabos de corrente quando instalar esta unidade.</td>
</tr>
<tr>
<td>Advertencia</td>
<td>Sujetar todo el cableado de alimentación cuando se instale este equipo para evitar que se mezcle con las conexiones del cableado &quot;in situ&quot;.</td>
</tr>
<tr>
<td>Warning</td>
<td>Fäst allt starkströmskablage vid installation av denna enhet så att fälkopplingen inte rubbas.</td>
</tr>
</tbody>
</table>

### Supply Circuit Warning

⚠️ **DANGER** Do not overload the circuit when you connect components to the power supply.

### Supply Circuit Warning in Other Languages

### Table 27 Supply circuit warning in other languages

<table>
<thead>
<tr>
<th>Language</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waarschuwing</td>
<td>Let erop dat de toestellen op voedingscircuits worden aangesloten zonder het vermogen van de bedrading te overschrijden.</td>
</tr>
<tr>
<td>Varoitus</td>
<td>Laiteyksiköt on yhdistetä vä huolellisesti syöttöpiiriin niin, että johdot eivät ole ylikuormitettuja.</td>
</tr>
</tbody>
</table>
Table 27 Supply circuit warning in other languages (continued)

<table>
<thead>
<tr>
<th>Language</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avertissement</td>
<td>Veillez à bien connecter les unités au circuit d'alimentation afin de ne pas surcharger les connections.</td>
</tr>
<tr>
<td>Achtung</td>
<td>Beim Anschließen en der Geräte an das Stromnetz ist darauf zu achten, daß die Schaltverbindungen nicht überlastet werden.</td>
</tr>
<tr>
<td>Avvertenza</td>
<td>Fare attenzione quando si collegano le unità al circuito di alimentazione, per non sovraccaricare i cablaggi.</td>
</tr>
<tr>
<td>Advarsel</td>
<td>Vær nøye med å koble enheter til strømforsyningskretsen slik at ledningene ikke overbelastes.</td>
</tr>
<tr>
<td>Aviso</td>
<td>Deverá ter precaução ao ligar unidades ao circuito de fornecimento de energia, para não sobrecarregar a instalação.</td>
</tr>
<tr>
<td>Atención</td>
<td>Poner mucho cuidado al conectar los equipos al circuito de alimentación a fin de no sobrecargar el cableado.</td>
</tr>
<tr>
<td>Warning</td>
<td>Var noga vid anslutning av enheter till matarströmkretsen så att ledningarna inte överbelastas.</td>
</tr>
</tbody>
</table>

Voltage Mismatch Warning

A voltage mismatch can cause equipment damage and may pose a fire hazard. If the voltage indicated on the label differs from the power outlet voltage, do not connect the chassis to that receptacle.

Voltage Mismatch Warning in Other Languages

Table 28 Voltage mismatch warning in other languages

<table>
<thead>
<tr>
<th>Language</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waarschuwing</td>
<td>Aansluiting op een verkeerd voedingsvoltagge kan beschadiging van de apparatuur veroorzaken en tot brandgevaar leiden. Het chassis mag niet aangesloten worden als de spanning die op het label staat aangegeven, anders is dan de spanning van het stopcontact.</td>
</tr>
<tr>
<td>Varoitus</td>
<td>Erisuuruisten jä nitteiden yhdistä minen voi aiheuttaa laitevaurion ja tulipalon vaaran. Jos tarraan merkitty jä nnite...</td>
</tr>
</tbody>
</table>
### Table 28 Voltage mismatch warning in other languages (continued)

<table>
<thead>
<tr>
<th>Language</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eroaa</td>
<td>Ärtjäsitse jà mittereest , ä là yhdistä asennuspohja pistorasiaan.</td>
</tr>
<tr>
<td>Avertissement</td>
<td>Une erreur de voltage risque d'endommager l'appareil et constitue un risque d'incendie. Si la tension indiquée sur l'étiquette est différente de la tension de l'alimentation, ne connectez en aucun cas le châssis à la prise.</td>
</tr>
<tr>
<td>Achtung</td>
<td>Bei nicht übereinstimmender Spannung kann es zu Geräteschäden und Feuergefahr kommen. Wenn die auf dem Etikett angegebene Spannung nicht mit der Steckdosenspannung übereinstimmt, schließen Sie das Gerät nicht an diese Steckdose an.</td>
</tr>
<tr>
<td>Avvertenza</td>
<td>Una tensione inadeguata può causare danni all'apparecchio e rischio di incendio. Se la tensione riportata sulla targhetta è diversa da quella della presa di alimentazione, non collegare lo chassis a tale presa.</td>
</tr>
<tr>
<td>Advarsel</td>
<td>Ulik spenning kan forårsake skade på utstyret og innebærer brannfare. Dersom spenningen på merkelappen er forskjellig fra spenningen i stikkontakten, må du ikke koble kabinettet til den stikkontakten.</td>
</tr>
<tr>
<td>Aviso</td>
<td>Uma voltagem incorrecta poderá causar danos no equipamento e constituir um risco de incêndio. Se a voltagem indicada na etiqueta for diferente da voltagem de saída da tomada de corrente da parede, não ligue o chassis a esse receptáculo.</td>
</tr>
<tr>
<td>Atención</td>
<td>Las diferencias en el voltaje pueden causar daños a los equipos y presentar peligro de incendio. Si el voltaje indicado en la etiqueta es diferente al de la toma de alimentación, no conectar el chasis a dicha toma.</td>
</tr>
<tr>
<td>Warning</td>
<td>Inkompatibla spänningar kan resultera i materiella skador samt utgör brandfara. Om den spännings som anges på etiketten skiljer sig från strömuttagets spänning ska chassit inte anslutas till detta uttag.</td>
</tr>
</tbody>
</table>
SELV Circuit Warning

To avoid electric shock, do not connect safety extra-low voltage (SELV) circuits to telephone-network voltage (TNV) circuits. LAN ports contain SELV circuits, and WAN ports contain TNV circuits. Some LAN and WAN ports both use RJ-45 connectors. Use caution when connecting cables.

SELV Circuit Warning in Other Languages

<table>
<thead>
<tr>
<th>Language</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waarschuwing</td>
<td>Om elektrische schokken te vermijden, mogen veiligheidscircuits met extra lage spanning (genaamd SELV = Safety Extra-Low Voltage) niet met telefoonnetwerkvoltage (TNV) circuits verbonden worden. LAN (Lokaal netwerk) poorten bevatten SELV circuits en WAN (Regionaal netwerk) poorten bevatten TNV circuits. Sommige LAN en WAN poorten gebruiken allebei RJ-45 connectors. Ga voorzichtig te werk wanneer u kables verbindt.</td>
</tr>
<tr>
<td>Attention</td>
<td>Pour éviter une électrocution, ne raccordez pas les circuits de sécurité basse tension (Safety Extra-Low Voltage ou SELV) des circuits de tension de réseau téléphonique (Telephone Network Voltage ou TNV). Les ports du réseau local (LAN) contiennent des circuits SELV et les ports du réseau longue distance (WAN) sont munis de circuits TNV. Certains ports LAN et WAN utilisent des connecteurs RJ-45. Raccordez les câbles en prenant toutes les précautions nécessaires.</td>
</tr>
<tr>
<td>Warnung</td>
<td>Zur Vermeidung von Elektroschock die Sicherheits-Kleinspannungs-Stromkreise (SELV-Kreise) nicht an Fernsprechnetzspannungs-Stromkreise (TNV-Kreise) anschließen. LAN-Ports enthalten SELV-Kreise, und WAN-</td>
</tr>
<tr>
<td>Language</td>
<td>Translation</td>
</tr>
<tr>
<td>----------</td>
<td>-------------</td>
</tr>
<tr>
<td>Avvertenza</td>
<td>Per evitare scosse elettriche, non collegare circuiti di sicurezza a tensione molto bassa (SELV) ai circuiti a tensione di rete telefonica (TNV). Le porte LAN contengono circuiti SELV e le porte WAN contengono circuiti TNV. Alcune porte LAN e WAN fanno uso di connettori RJ-45. Fare attenzione quando si collegano cavi.</td>
</tr>
<tr>
<td>Aviso</td>
<td>Para evitar choques eléctricos, não conecte os circuitos de segurança de baixa tensão (SELV) aos circuitos de tensão de rede telefónica (TNV). As portas LAN contêm circuitos SELV e as portas WAN contêm circuitos TNV. Algumas portas LAN e WAN usam conectores RJ-45. Tenha o devido cuidado ao conectar os cabos.</td>
</tr>
<tr>
<td>Advertencia</td>
<td>Para evitar la sacudida eléctrica, no conectar circuitos de seguridad de voltaje muy bajo (safety extra-low voltage = SELV) con circuitos de voltaje de red telefónica (telephone network voltage = TNV). Los puertos de redes de área local (local area network = LAN) contienen circuitos SELV, y los puertos de redes de área extendida (wide area network = WAN) contienen circuitos TNV. En algunos casos, tanto los puertos LAN como los WAN usan conectores RJ-45. Proceda con precaución ao conectar os cabos.</td>
</tr>
</tbody>
</table>
Incorrect Connection Warning

Incorrect connection of this equipment to a general purpose outlet could result in a hazardous situation.

Incorrect Connection Warning in Other Languages

<table>
<thead>
<tr>
<th>Language</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waarschuwing</td>
<td>Incorrecte aansluiting van deze of aangesloten apparatuur op een stopcontact voor algemene doeleinden kan een gevaarlijke situatie tot gevolg hebben.</td>
</tr>
<tr>
<td>Varoitus</td>
<td>Tä mä n laitteen tai siihen liitettyjen laitteiden virheellinen kytkenä yleispistorasiaan voi aiheuttaa vaaratilanteen.</td>
</tr>
<tr>
<td>Attention</td>
<td>Un branchement incorrect de cet équipement ou de l'équipement branché à une prise d'usage général peut créer une situation dangereuse.</td>
</tr>
<tr>
<td>Warnung</td>
<td>Inkorrekte Anschluss an diesem oder damit verbundenen Gerät an einer Allzwecksteckdose kann eine Gefahrsituation verursachen.</td>
</tr>
<tr>
<td>Avvertenza</td>
<td>Un collegamento errato di questo apparecchio, o dell'apparecchiatura a esso collegato, a una presa di uso generale può causare una situazione pericolosa.</td>
</tr>
<tr>
<td>Advarsel</td>
<td>Feil kobling av dette utstyret eller tilhør rende utstyr til et vanlig uttak kan føre til farlige situasjoner.</td>
</tr>
<tr>
<td>Aviso</td>
<td>Uma conexão incorrecta a uma ficha de alimentação eléctrica normal, deste ou de qualquer equipamento a este conectado, poderá resultar numa situação potencialmente perigosa.</td>
</tr>
<tr>
<td>Advertencia</td>
<td>La conexión incorrecta de este equipo, o del equipo conectado, a una toma o receptáculo de tipo general podrá a resultar en una situación peligrosa.</td>
</tr>
<tr>
<td>Warning</td>
<td>Felaktig koppling av denna eller ansluten utrustning till ett universaluttag kan orsaka riskfylld situation.</td>
</tr>
</tbody>
</table>
Caution Notices

⚠️ **CAUTION**

It is required that, if interconnecting equipment resides within more than one equipment rack, these racks should be at the same ground potential.

⚠️ **CAUTION**

When handling any electronic device, be sure to take electrostatic discharge (ESD) precautions. The minimum requirement is a properly grounded antistatic wrist strap and grounding wire.

⚠️ **CAUTION**

If removal of a FRU or blanking plate leaves a hole, block the hole quickly with a blanking plate or by installing a replacement FRU. Failure to do this can disrupt airflow and seriously reduce cooling.

⚠️ **CAUTION**

Ambient temperature within the rack may be greater than that of the room. With regard to the maximum rated ambient for Axiom components, do not reduce the amount of airflow that is required for safe operation.

⚠️ **CAUTION**

Never block the ventilation holes in a chassis. Sufficient air circulation is required for the internal components to operate properly and to prevent the possibility of fire. Do not push objects of any kind into the ventilation holes. Such action could result in fire or electrical shock. Keep all liquids away from Axiom components.

⚠️ **CAUTION**

Ensure that component weight distribution in the rack is balanced. Uneven weight distribution can cause hazardous instability. The rack should have stabilization feet or brackets installed, or have another means that does not allow the rack to tip when you service it. At a minimum, we recommend that you install stabilization brackets on the rear feet of the rack because the rack is front-heavy.

⚠️ **CAUTION**

Slammers weigh 100 lb (45.4 kg). To handle them safely, use an appropriate number of persons.
Qualified personnel are advised to exercise great care at all times when they work on an Axiom system. Remember to:

- Remove rings, watches, or other jewelry and neckties before you begin any procedure.
- Use caution near fan assemblies; the moving parts can change speed unexpectedly.
- Use the correct tools for the job.
- Keep all paperwork up to date, complete, and accurate.

The sum of the ratings of the components that plug into the PDU must be less than 80% of the current and power ratings of the PDU. Similarly, the current rating of the PDU must be less than 80% of the rating for the building supply circuit.

A Brick weighs up to 65 lb (29.5 kg). For safe handling, use two people to lift it.
APPENDIX C

Pillar Axiom Hardware Specifications

About Hardware Specifications

Hardware specifications (sometimes called data sheets):

• Describe the system's operating environment.

• List the agency approvals.

• List physical attributes of the Pillar Axiom storage system and its hardware components.
About Pillar Axiom Hardware Specifications

A Pillar Axiom storage system is an assembly of the following components, all of which are described in this appendix:

- One Pilot management controller. See About Hardware Specifications.
- One to four Slammer storage controllers. See About Slammer Hardware Specification.
- One to 64 Brick storage enclosures. See About Brick Hardware Specification.
- One to four PDUs per rack, the number of which depends on power inlet characteristics and the number of components in each rack. See Pillar Axiom PDU Hardware Specification.
- One to four 42U racks, the number of which depends on the configuration of Slammers and Bricks. See Pillar Rack Hardware Specification.

A Pillar Axiom storage system has the characteristics that are described on the following pages.

System Power Requirements

Pillar Axiom storage systems require one of the power inputs shown below. The voltage and frequency show minimum and maximum values.

- 100-120 V, 47-63 Hz, 20 A
- 200-240 V, 47-63 Hz, 20 A
- 100-120 V, 47-63 Hz, 30 A
- 200-240 V, 47-63 Hz, 30 A
- 230 V, 16 A or 32 A (Europe)
- Wye-connected 3-phase:
  - USA: 199-217 V, 47-63 Hz, 30 A
  - Europe: 380-415 V, 47-63 Hz, 16 A

The total power required by a rack depends on the number and type of hardware that is in the rack.
System Environmental

Table 31 System altitude specifications

<table>
<thead>
<tr>
<th>Mode</th>
<th>Elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operational</td>
<td>-200 to 10,000 ft (-61 to 3048 m)</td>
</tr>
<tr>
<td>Non-operational</td>
<td>-200 to 40,000 ft (-61 to 12,192 m)</td>
</tr>
</tbody>
</table>

Table 32 System temperature and humidity specifications

<table>
<thead>
<tr>
<th>Mode</th>
<th>Temperature</th>
<th>Non-condensing humidity</th>
<th>Max wet bulb temperature</th>
<th>Gradient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operational</td>
<td>+41 to 104°F (5 to 40°C) up to 7000 ft</td>
<td>10–85%</td>
<td>86°F (30°C)</td>
<td>36°F/hr (20°C/hr)</td>
</tr>
<tr>
<td>Non-operational</td>
<td>-40 to 158°F (-40 to 70°C)</td>
<td>5–95%</td>
<td>104°F (40°C)</td>
<td>54°F/hr (30°C/hr)</td>
</tr>
</tbody>
</table>

Note: For Bricks that have five-platter disk drives, the maximum ambient operational temperature from 7000 ft to 10,000 ft is 95°F (35°C).

Pillar Axiom Acoustics

Acoustics for a Pillar Axiom system that comprises the following components were tested to ISO 7779 by standard specifications:

- One Pilot
- One NAS Slammer
- Three Bricks

Such a system generates an acoustic level that is no greater than 70 dBA.
Table 33 System acoustics specification

<table>
<thead>
<tr>
<th>Acoustic level (tested to ISO7779)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does not exceed 6.5 Bels under normal conditions, which is:</td>
</tr>
<tr>
<td>• 73.4°F (23°C) ambient</td>
</tr>
<tr>
<td>• All fans operational</td>
</tr>
<tr>
<td>• No fault conditions</td>
</tr>
<tr>
<td>The acoustic level will increase under fault conditions.</td>
</tr>
</tbody>
</table>

System Random Vibration Specifications

Table 34 System random vibration specifications

<table>
<thead>
<tr>
<th>Mode</th>
<th>Force</th>
<th>Frequency</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operational</td>
<td>0.1 G RMS</td>
<td>3–100 hz (X, Y, and Z axis)</td>
<td>15 min</td>
</tr>
<tr>
<td>Non-operational</td>
<td>Administered using the Telcordia GR-63 CORE test specifications. Tested with the rack inside a shipping crate.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

System Regulatory Agency Compliance

Agency approvals are based on a Pillar Axiom system that consists of:

• One Pilot
• Two Slammers
• Twelve Bricks

This section identifies:

• Regulatory Agency Compliances
• FCC Warning Statement
• European Union Compliance Statement
Regulatory Agency Compliances

The Pillar Axiom storage system complies with the following regulatory agency requirements.

Table 35 Safety, quality, and environmental standards

<table>
<thead>
<tr>
<th>Logo</th>
<th>Standard</th>
</tr>
</thead>
</table>
| ☢️ | FCC (United States). This device complies with FCC Rules Part 15. Operation is subject to the following two conditions:  
1. This device may not cause harmful interference.  
2. This device must accept any interference that may be received, including interference that may cause undesired operation. |
| ☑️ | CB Scheme by IECEE standard IEC 60950, First Edition |
| ☑️ | Conformité Européenne /DoC |
| ☑️ | UL and CSA under UL (cUL) |
| ☑️ | TUV/GS |
| ☑️ | Pillar Data Systems offers customers a recycle program to properly dispose of surplus products and products that have reached their end of life. Equipment that is returned to Pillar through this program is disposed of in an environmentally safe manner using processes that comply with the WEEE (EU Directive on Waste Electrical and Electronic Equipment) regulations.  
Pillar provides (on request) documentation about product disposition when the recycling process is complete. Upon request, Pillar also provides a Certificate of Destruction, which releases the customer from further liability for the equipment returned through the Recycle program.  
Customers should contact Pillar Customer Service for information on the logistics and location(s) of the approved recycle facilities. |

Appendix C Pillar Axiom Hardware Specifications

About Pillar Axiom Hardware Specifications 142
Table 35 Safety, quality, and environmental standards (continued)

<table>
<thead>
<tr>
<th>Logo</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="RoHS Compliant" /></td>
<td>Pillar Data Systems objectives are to ensure that our high product quality and reliability standards are met through the processes that have been verified and approved. This is achieved through ISO 9001:2000 and the development and deployment of Pb-free solder qualification guidelines for components (RoHS), interconnects, and PCB, PCA reliability. Pillar will continue to work with industry consortia to define common qualification criteria. Pillar will apply Pb-free solder technologies to product designs as required by legislation.</td>
</tr>
<tr>
<td><img src="image" alt="ISO 9001:2000" /></td>
<td>ISO 9001:2000 Registered manufacturing process</td>
</tr>
</tbody>
</table>

**FCC Warning Statement**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio-frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case users will be required to correct the interference at their own expense.

You can determine if your equipment causes interference by turning it off. If the interference stops, it was probably caused by the equipment or one of its peripheral devices. If the equipment causes interference to radio or television reception, try to correct the interference by using one or more of the following measures:

- Turn the television or radio antenna until the interference stops.
- Move the equipment to one side or the other of the television or radio.
- Move the equipment farther away from the television or radio.
- Plug the equipment into an outlet that is on a different circuit from the television or radio. (That is, make certain the equipment and the television or radio are on circuits that are controlled by different circuit breakers or fuses.)
CAUTION Changes or modifications that are not expressly approved by the party that is responsible for compliance could void the user's authority to operate the equipment.

European Union Compliance Statement

This product is in conformity with the protection requirements of EC Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electro-magnetic compatibility. The manufacturer cannot accept responsibility for any failure to satisfy the protection requirements that result from a non-recommended modification of the product.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to CISPR 22/European Standard EN 55022. The Limits for Class A equipment were derived for residential environments to provide reasonable protection against interference with licensed communication equipment.

A Declaration of Conformity with the requirements of the Directive has been signed by Pillar Data Systems, 2840 Junction Avenue, San Jose, CA 95134.

The following standards were applied:

1  Emissions: EN55022 (Class A radiated and conducted, 110 V, 240 V)
2  EMC: EN55024 (immunity):
   • EN 61000-3-2
   • EN 61000-3-3
   • EN 61000-4-2 ESD:±4 kV contact,±8 kV air touch
   • EN 61000-4-3 Radiated immunity (within the limits that are listed in our technical specifications)
   • EN 61000-4-4 Electrical fast transients/burst:±1 kV AC,±0.5 kV I/O
   • EN 61000-4-5 Surges ±1 kV differential mode,±2 kV common mode
   • EN 61000-4-6 Conducted immunity: 3 V
   • EN 61000-4-11 Supply dips and interruptions: 30% and 100%

System Packaging and Transportation

Packaging meets the following requirements:
• For packages under 150 lb—International Safe Transit Association (ISTA 2A) Procedures 1 and 2.

• For packages over 150 lb—Network Equipment Building System (NEBS) core standards.

  GR-63-CORE, Packaged Equipment Shock (4.3.1), Office Vibration (4.4.3) and Transportation Vibration (4.4.4).

**System Warranty**

Hardware components in a Pillar Axiom storage system are covered by a three-year warranty.
About Hardware Specifications

A is an active management and provisioning front end as well as the administrator interface to a.

Pilot Dimensions and Weight

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>3.5 in (8.9 cm); 2U</td>
</tr>
<tr>
<td>Width</td>
<td>17.7 in (45.0 cm)</td>
</tr>
<tr>
<td>Depth</td>
<td>20-26 in (50.8-66.0 cm)</td>
</tr>
<tr>
<td>Weight</td>
<td>40 lb (18.1 kg)</td>
</tr>
</tbody>
</table>

Pilot Power Characteristics

<table>
<thead>
<tr>
<th>Power characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>47 to 63 Hz</td>
</tr>
<tr>
<td>AC voltage</td>
<td>100 to 240 V</td>
</tr>
<tr>
<td>Current draw</td>
<td>1.5 A at 115 V</td>
</tr>
<tr>
<td></td>
<td>0.8 A at 230 V</td>
</tr>
<tr>
<td>Max power consumption</td>
<td>143 VA</td>
</tr>
<tr>
<td>Max heat dissipation</td>
<td>750 BTU/hr</td>
</tr>
<tr>
<td>AC plug type</td>
<td>2 IEC 320 connection</td>
</tr>
</tbody>
</table>
Pilot Regulatory Agency Compliance

This equipment has been tested and found to comply with the limits for a class B 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 guide, may cause harmful interference to radio communications. Operation of this equipment in a residential area is may cause harmful interference, in which case the user must correct the interference at his own expense.

[other] The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

[other] Shielded interface cables and A.C. power cord, if any, must be used in order to comply with the emission limits.

Table 38 Pilot safety and quality standards

<table>
<thead>
<tr>
<th>Logo</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FCC (United States). This device complies with FCC Rules Part 15 for a class B digital device.</td>
</tr>
<tr>
<td>🇪🇺</td>
<td>Conformité Européenne /DoC</td>
</tr>
</tbody>
</table>
Pilot Packaging and Transportation

Pilot packaging meets the following requirements:

- For packages under 150 lb—International Safe Transit Association (ISTA 2A) Procedures 1 and 2.

- For packages over 150 lb—Network Equipment Building System (NEBS) core standards.

  GR-63-CORE, Packaged Equipment Shock (4.3.1), Office Vibration (4.4.3) and Transportation Vibration (4.4.4).
About Slammer Hardware Specification

Slammers are fully redundant controllers within a Pillar Axiom storage system. A Slammer can be ordered as either a SAN or a NAS front end.

Slammer Dimensions and Weight

Table 39 Slammer dimensions and weight

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>7 in (17.78 cm); 4U</td>
</tr>
<tr>
<td>Width</td>
<td>17.72 in (45 cm)</td>
</tr>
<tr>
<td>Depth</td>
<td>26 in (66 cm)</td>
</tr>
<tr>
<td>Weight</td>
<td>100 lb (45.4 kg)</td>
</tr>
</tbody>
</table>

Slammer Power Characteristics

Table 40 Slammer power characteristics

<table>
<thead>
<tr>
<th>Power characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>47 to 63 Hz</td>
</tr>
<tr>
<td>AC voltage</td>
<td>100–120 V to 200–240 V</td>
</tr>
<tr>
<td>Max power consumption</td>
<td>685 VA</td>
</tr>
<tr>
<td>Current draw (combined for both control units)</td>
<td>6.1 A at 115 V</td>
</tr>
<tr>
<td></td>
<td>3.2 A at 230 V</td>
</tr>
<tr>
<td>Max heat dissipation</td>
<td>2220 BTU/hr</td>
</tr>
<tr>
<td>AC plug type</td>
<td>Four IEC 320 C13 connection</td>
</tr>
</tbody>
</table>
Slammer Regulatory Agency Compliance

Pillar Axiom Slammers comply with the following regulatory agency requirements.

Table 41 Slammer safety and quality standards

<table>
<thead>
<tr>
<th>Logo</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FCC (United States). This device complies with FCC Rules Part 15. Operation is subject to the following two conditions:</td>
</tr>
<tr>
<td></td>
<td>1 This device may not cause harmful interference and</td>
</tr>
<tr>
<td></td>
<td>2 This device must accept any interference that maybe received, including interference that may cause undesired operation.</td>
</tr>
<tr>
<td></td>
<td>CB Scheme by IECEE standard IEC 60950, Third Edition (1999)</td>
</tr>
<tr>
<td></td>
<td>Conformite Europeenne /DoC</td>
</tr>
<tr>
<td></td>
<td>UL and CSA under UL (cUL)</td>
</tr>
<tr>
<td></td>
<td>TUV/GS</td>
</tr>
<tr>
<td></td>
<td>ISO 9001:2000 Registered manufacturing process</td>
</tr>
</tbody>
</table>

Table 42 Slammer EM emissions and immunity

<table>
<thead>
<tr>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>• CISPR 22-A</td>
</tr>
<tr>
<td>• EN55022 Class A radiated and conducted emissions (110 V, 220 V)</td>
</tr>
<tr>
<td>• EN55024 Immunity:</td>
</tr>
<tr>
<td>• EN 61000-3-2</td>
</tr>
<tr>
<td>• EN 61000-3-3</td>
</tr>
<tr>
<td>• EN 61000-4-2 ESD: ±4 kV contact, ±8 kV air</td>
</tr>
<tr>
<td>• EN 61000-4-3 Radiated immunity (within the limits that are listed in our technical specifications)</td>
</tr>
<tr>
<td>• EN 61000-4-4 Electrical fast transients/burst: ±1 kV AC, ±0.5 kV I/O</td>
</tr>
<tr>
<td>• EN 61000-4-5 Surges ±1 kV differential mode, ±2 kV common mode</td>
</tr>
</tbody>
</table>
Table 42 Slammer EM emissions and immunity (continued)

<table>
<thead>
<tr>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>• EN 61000-4-6 Conducted immunity: 3 V</td>
</tr>
<tr>
<td>• EN 61000-4-8</td>
</tr>
<tr>
<td>• EN 61000-4-11 Supply dips and interruptions: 30% and 100%</td>
</tr>
</tbody>
</table>

**Slammer Packaging and Transportation**

Packaging meets the following requirements:

- For packages under 150 lb—International Safe Transit Association (ISTA 2A) Procedures 1 and 2.
- For packages over 150 lb—Network Equipment Building System (NEBS) core standards.
  GR-63-CORE, Packaged Equipment Shock (4.3.1), Office Vibration (4.4.3) and Transportation Vibration (4.4.4).
About Brick Hardware Specification

A Brick is a high-performance disk subsystem with an optimized, proprietary RAID controller.

Brick Dimensions and Weight

Table 43 Brick dimensions and weight

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>3.5 in (8.89 cm); 2U</td>
</tr>
<tr>
<td>Width</td>
<td>17.72 in (45 cm)</td>
</tr>
<tr>
<td>Depth</td>
<td>22 in (55.88 cm)</td>
</tr>
<tr>
<td>Weight (SATA)</td>
<td>65 lb (29.5 kg)</td>
</tr>
<tr>
<td>Weight (FC)</td>
<td>70 lb (31.8kg)</td>
</tr>
</tbody>
</table>

Brick Power Characteristics

Table 44 Brick power characteristics

<table>
<thead>
<tr>
<th>Power characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>47 to 63 Hz</td>
</tr>
<tr>
<td>AC voltage</td>
<td>100–120 V to 200–240 V</td>
</tr>
<tr>
<td>Max power consumption (SATA)</td>
<td>267 VA</td>
</tr>
<tr>
<td>Max power consumption (FC)</td>
<td>330 VA</td>
</tr>
<tr>
<td>Current draw (SATA)</td>
<td>2.55 to 1.17 A at 115 or 230 V</td>
</tr>
<tr>
<td>Current draw (FC)</td>
<td>3.35 to 1.49 A at 115 or 230 V</td>
</tr>
<tr>
<td>Max heat dissipation</td>
<td>1370 BTU/hr</td>
</tr>
<tr>
<td>AC plug type</td>
<td>Two IEC 320 connections</td>
</tr>
</tbody>
</table>
Brick Regulatory Agency Compliance

Pillar Axiom Bricks comply with the following regulatory agency requirements.

**Table 45 Brick safety and quality standards**

<table>
<thead>
<tr>
<th>Logo</th>
<th>Standard</th>
</tr>
</thead>
</table>
|      | FCC (United States). This device complies with FCC Rules Part 15. Operation is subject to the following two conditions:  
1. This device may not cause harmful interference and  
2. This device must accept any interference that maybe received, including interference that may cause undesired operation. |
|      | CB Scheme by IECEE standard IEC 60950, Third Edition (1999) |
|      | Conformité Européenne /DoC |
|      | UL and CSA under UL (cUL) |
|      | TUV/GS |
|      | ISO 9001:2000 Registered manufacturing process |

**Table 46 Pillar Axiom EM emissions and immunity**

<table>
<thead>
<tr>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>• CISPR 22-A</td>
</tr>
<tr>
<td>• EN55022 Class A radiated and conducted emissions (110 V, 220 V)</td>
</tr>
</tbody>
</table>
| • EN55024 Immunity:  
  • EN 61000-3-2  
  • EN 61000-3-3  
  • EN 61000-4-2 ESD: ±4 kV contact, ±8 kV air  
  • EN 61000-4-3 Radiated immunity (within the limits that are listed in our technical specifications)  
  • EN 61000-4-4 Electrical fast transients/burst: ±1 kV AC, ±0.5 kV I/O |
Table 46 Pillar Axiom EM emissions and immunity (continued)

<table>
<thead>
<tr>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>• EN 61000-4-5 Surges ±1 kV differential mode, ±2 kV common mode</td>
</tr>
<tr>
<td>• EN 61000-4-6 Conducted immunity: 3 V</td>
</tr>
<tr>
<td>• EN 61000-4-11 Supply dips and interruptions: 30% and 100%</td>
</tr>
</tbody>
</table>

Brick Packaging and Transportation

Packaging meets the following requirements:

• For packages under 150 lb—International Safe Transit Association (ISTA 2A) Procedures 1 and 2.

• For packages over 150 lb—Network Equipment Building System (NEBS) core standards.

GR-63-CORE, Packaged Equipment Shock (4.3.1), Office Vibration (4.4.3) and Transportation Vibration (4.4.4)
Pillar Axiom PDU Hardware Specification

If you install non-Pillar PDUs, they must meet the Pillar Data Systems PDU specification, as outlined below.

Table 47 PDU specifications

<table>
<thead>
<tr>
<th>Criteria</th>
<th>20 amp single-phase</th>
<th>30 amp single-phase</th>
<th>3-phase</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Form factor</strong></td>
<td>EIA Rack Mountable</td>
<td>EIA Rack Mountable</td>
<td>EIA Rack Mountable</td>
</tr>
<tr>
<td></td>
<td>1 U high (1.75 in,</td>
<td>1 U high (1.75 in,</td>
<td>2 U high (3.5 in, 8.9 cm)</td>
</tr>
<tr>
<td></td>
<td>4.45 cm) &lt; 8 in (20.3 cm) deep</td>
<td>4.45 cm) &lt; 8 in (20.3 cm) deep</td>
<td>9.5 in (24.13 cm) deep</td>
</tr>
<tr>
<td><strong>Receptacles</strong></td>
<td>C13, 12 receptacles min.</td>
<td>C13, 12 receptacles min.</td>
<td>C13, 24 receptacles (8 per phase) min.</td>
</tr>
<tr>
<td><strong>Inlet cable</strong></td>
<td>15 ft (4.572 m) min</td>
<td>15 ft (4.572 m) min</td>
<td>15 ft (4.572 m) min</td>
</tr>
<tr>
<td></td>
<td>Plug options: L6-20P, L5-20P</td>
<td>Plug options: L6-30P, L5-30P</td>
<td>NEMA L21-30P</td>
</tr>
<tr>
<td><strong>Voltage input</strong></td>
<td>100–240 VAC</td>
<td>100–240 VAC</td>
<td>120-208 VAC 3-phase</td>
</tr>
<tr>
<td><strong>Voltage output</strong></td>
<td>100–240 VAC</td>
<td>100–240 VAC</td>
<td>120 VAC 1-phase</td>
</tr>
<tr>
<td><strong>Circuit breakers (CB)</strong></td>
<td>Two, 10 A ea. Each circuit breaker controls half of the outlet receptacles.</td>
<td>Two, 15 A ea. Each circuit breaker controls half of the outlet receptacles.</td>
<td>One main, 30 A Three secondary, 20 A each</td>
</tr>
</tbody>
</table>
### Table 47 PDU specifications (continued)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>20 amp single-phase</th>
<th>30 amp single-phase</th>
<th>3-phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receptacle retention device</td>
<td>All receptacles have a plug retention device.</td>
<td>All receptacles have a plug retention device.</td>
<td>All receptacles have a plug retention device.</td>
</tr>
<tr>
<td>Inlet cable retention device</td>
<td>If a detachable inlet cable is provided, a cable retention device is included.</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>EMI/RFI filter</td>
<td>Common Mode Insertion Loss 10 db @ 1 MHz, Differential Mode 30 db @ 1 MHz. MHz/db - 0.15/6, .50</td>
<td>Common Mode Insertion Loss 10 db @ 1 MHz, Differential Mode 30 db @ 1 MHz. MHz/db - 0.15/6, .50</td>
<td>Common mode insertion loss 25 db @ 1 MHz. Differential mode insertion loss 22 db @ 1 MHz. MHz/db - 0.15/6, .50</td>
</tr>
<tr>
<td>Surge suppression</td>
<td>270 VAC</td>
<td>320 VAC</td>
<td>275 VAC</td>
</tr>
</tbody>
</table>
Pillar Rack Hardware Specification

A Pillar Axiom 42 U rack contains:

- One Pilot.
- One or two NAS or SAN Slammers.
- One to 16 Bricks. The exact number of Bricks depends on the number of Slammers in the rack.
- One to four power distribution units.

Table 48 Rack specifications for a Pillar Axiom system

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Pillar rack</th>
<th>Non-Pillar rack (minimum requirements)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height (inside)</td>
<td>42 U</td>
<td>42 U to hold one Pilot, one or two Slammers, and up to 15 Bricks</td>
</tr>
<tr>
<td></td>
<td>73.6 in (187 cm)</td>
<td>18 U to hold one Pilot, one Slammer, and up to four Bricks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>73.6 in (187 cm)</td>
</tr>
<tr>
<td>Width (inside)</td>
<td>17.7 in (45 cm)</td>
<td>• 19 in (48.26 cm) panel</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 17.7 in (45 cm) rail-to-rail</td>
</tr>
<tr>
<td>Height (outside)</td>
<td>78.7 in (199.9 cm)</td>
<td>NA</td>
</tr>
<tr>
<td>Width</td>
<td>• 23.8 in (60.48 cm) overall</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• 17.7 in (45 cm) rail-to-rail</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• 19 in (48.26 cm) panel</td>
<td></td>
</tr>
<tr>
<td>Depth (inside)</td>
<td>• 35 in (88.9 cm)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• 26–30 in (66–76.2 cm) rail-to-rail</td>
<td></td>
</tr>
<tr>
<td>Front door</td>
<td>• Vented</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Light-tint Plexiglas</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• 1.5 in (3.81 cm) deep</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Lockable</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Open left/right</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Vented</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• 1 in (2.54 cm) deep min.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• 1 in (2.54 cm) clearance between front vertical channel and inside of frame</td>
<td></td>
</tr>
</tbody>
</table>
Table 48 Rack specifications for a Pillar Axiom system (continued)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Pillar rack</th>
<th>Non-Pillar rack (minimum requirements)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• 1 in (2.54 cm) clearance between front vertical channel and inside of frame</td>
<td></td>
</tr>
<tr>
<td>Rear door</td>
<td>• Vented</td>
<td>Vented</td>
</tr>
<tr>
<td></td>
<td>• Lockable</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Open left/right</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Vented</td>
<td></td>
</tr>
<tr>
<td>Sides</td>
<td>• Solid</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>• Removable</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Lockable</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• 1 in (2.54 cm) between side and frame</td>
<td></td>
</tr>
<tr>
<td>Vertical channels</td>
<td>• Square- or round-hole unthreaded</td>
<td>• EIA spacing</td>
</tr>
<tr>
<td></td>
<td>• 26 in (66 cm) apart</td>
<td>• Front-to-rear mounting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Cage nuts</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Square or round EIA-standard mounting holes preferred</td>
</tr>
<tr>
<td>Vents</td>
<td>• Front and back doors</td>
<td>• Front and back doors</td>
</tr>
<tr>
<td></td>
<td>• Top</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PDU</td>
<td>• 4 PDUs</td>
<td>• Redundant power</td>
</tr>
<tr>
<td></td>
<td>• 90–240 VAC, 50-60 Hz</td>
<td>• 90–240 VAC, 50-60 Hz</td>
</tr>
<tr>
<td></td>
<td>• 20-30 A</td>
<td>• 8350 watts1991 watts</td>
</tr>
<tr>
<td></td>
<td>• 42 C13 outlets</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Horizontal mount</td>
<td></td>
</tr>
<tr>
<td>Heat dissipation</td>
<td>28,500 BTU/hr</td>
<td>28,500 BTU/hr6793 BTU/hr</td>
</tr>
<tr>
<td></td>
<td>6793 BTU/hr</td>
<td></td>
</tr>
<tr>
<td>Frame gauge</td>
<td>12-14</td>
<td></td>
</tr>
<tr>
<td>Loaded weight</td>
<td>1505 lb (683 kg)730 lb (332 kg)</td>
<td>1505 lb (683 kg)730 lb (332 kg)</td>
</tr>
<tr>
<td>Topple angle when fully loaded and stationary</td>
<td>12° when front of rack faces downward</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>24° when rear of rack faces downward</td>
<td></td>
</tr>
<tr>
<td></td>
<td>24º when rear of rack faces downward</td>
<td></td>
</tr>
</tbody>
</table>
The center of gravity of a populated Pillar 42 U rack is toward the front. The threshold tilt angle depends on whether the front or rear of the rack faces down the slope:

- Front faces downward: 12° maximum slope.
- Rear faces downward: 24° maximum slope.

Figure 60 Maximum tilt angles for stationary Pillar 42 U racks
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