

TIBCO Messaging Appliance™ P-7500

Hardware Installation

*Software Release 8.7
revised November 2012*

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Preface

This document includes the information that trained service technicians need to install one or more TIBCO Messaging Appliance P-7500 systems in a rack.

It includes specific details on equipment handling and safety guidelines, site preparation, and the instructions, required tools and parts needed to ensure a successful installation of your P-7500.

Procedures for performing a basic configuration of the P-7500 after installation is complete, sufficient for you to access the IP network, are in *TIBCO Messaging Appliance P-7500 Getting Started*.

Topics

- [Audience, page x](#)
- [Related Documentation, page xi](#)
- [Typographical Conventions, page xii](#)
- [How to Contact TIBCO Support, page xiv](#)

Audience

This document is intended for use as a reference by system administrators and experienced users who are familiar with IP network configuration.

TIBCO assumes that:

- you have a functioning IP network
- you and your TIBCO Sales representative have determined the correct number and placement of P-7500 systems required
- that these P-7500 systems have been or will be installed in an equipment rack and at least minimally configured by network administrators who are responsible for installing and setting up network equipment

Related Documentation

This section lists documentation resources you may find useful.

TIBCO Messaging Appliance P-7500 Documentation

In addition to this book, the following documents form the TIBCO Messaging Appliance P-7500 documentation set:

- *TIBCO Messaging Appliance P-7500 Getting Started*
- *TIBCO Messaging Appliance P-7500 Concepts*
- *TIBCO Messaging Appliance P-7500 Operations Guide*
- *TIBCO Messaging Appliance P-7500 Maintenance and Troubleshooting*
- *TIBCO Messaging Appliance P-7500 Administration Interface Reference*
- *TIBCO Messaging Appliance P-7500 Release Notes*

If the information in the latest *TIBCO Messaging Appliance P-7500 Release Notes* differs from the information in this document, always follow the release notes.

Typographical Conventions

The following typographical conventions are used in this manual.

Table 1 General Typographical Conventions

Convention	Use
code font	<p>Code font identifies commands, code examples, filenames, pathnames, and output displayed in a command window. For example:</p> <p>Use <code>MyCommand</code> to start the foo process.</p>
bold code font	<p>Bold code font is used in the following ways:</p> <ul style="list-style-type: none">• In procedures, to indicate what a user types. For example: Type admin.• In large code samples, to indicate the parts of the sample that are of particular interest.• In command syntax, to indicate the default parameter for a command. For example, if no parameter is specified, <code>MyCommand</code> is enabled: <code>MyCommand [enable disable]</code>
<i>italic font</i>	<p>Italic font is used in the following ways:</p> <ul style="list-style-type: none">• To indicate a document title. For example: See <i>TIBCO BusinessWorks Concepts</i>.• To introduce new terms For example: A portal page may contain several portlets. <i>Portlets</i> are mini-applications that run in a portal.• To indicate a variable in a command or code syntax that you must replace. For example: <code>MyCommand <i>pathname</i></code>
Key combinations	<p>Key name separated by a plus sign indicate keys pressed simultaneously. For example: <code>Ctrl+C</code>.</p> <p>Key names separated by a comma and space indicate keys pressed one after the other. For example: <code>Esc, Ctrl+Q</code>.</p>

Table 2 Syntax Typographical Conventions

Convention	Use
[]	<p>An optional item in a command or code syntax.</p> <p>For example:</p> <pre>MyCommand [optional_parameter] required_parameter</pre>
	<p>A logical 'OR' that separates multiple items of which only one may be chosen.</p> <p>For example, you can select only one of the following parameters:</p> <pre>MyCommand param1 param2 param3</pre>
{ }	<p>A logical group of items in a command. Other syntax notations may appear within each logical group.</p> <p>For example, the following command requires two parameters, which can be either the pair param1 and param2, or the pair param3 and param4.</p> <pre>MyCommand {param1 param2} {param3 param4}</pre> <p>In the next example, the command requires two parameters. The first parameter can be either param1 or param2 and the second can be either param3 or param4:</p> <pre>MyCommand {param1 param2} {param3 param4}</pre> <p>In the next example, the command can accept either two or three parameters. The first parameter must be param1. You can optionally include param2 as the second parameter. And the last parameter is either param3 or param4.</p> <pre>MyCommand param1 [param2] {param3 param4}</pre>

How to Contact TIBCO Support

For comments or problems with this manual or the software it addresses, please contact TIBCO Support as follows.

- For an overview of TIBCO Support, and information about getting started with TIBCO Support, visit this site:

<http://www.tibco.com/services/support>

- If you already have a valid maintenance or support contract, visit this site:

<https://support.tibco.com>

Entry to this site requires a user name and password. If you do not have a user name, you can request one.

Chapter 1

Product Handling Guidelines

This chapter provides detailed information on TIBCO product shipping, handling, and installation safety information.

Topics

- *Shipping and Handling Rules, page 2*
- *Product Warning Labels, page 3*
- *Electrostatic Discharge (ESD) Rules, page 4*
- *System Blade Rules, page 5*

Shipping and Handling Rules

Follow these general shipping and handling rules to avoid potentially hazardous situations or damage to the equipment:

- do not unpack TIBCO Messaging Appliance P-7500 systems until you are ready to install them. Keep the chassis in the shipping container to prevent accidental damage until you have determined where you want it installed.
- verify that all site preparations are complete prior to installation
- allow the equipment to sit for a minimum of one hour before proceeding with installation. Blades and subassemblies must be conditioned to room temperature for a minimum period of one hour prior to installation.
- never attempt to lift an object that might be too heavy for one person
- maintain a solid footing and ensure that equipment is situated between feet before lifting
- remove packing material from the area prior to handling
- secure any loose cabling to the equipment prior to handling
- never install equipment that appears damaged
- ensure that Electrostatic Discharge (ESD) precautions are taken when handling blades and subassemblies
- always keep the equipment in its original packing until ready to install. Install blades and subassemblies immediately after removal from the protective packaging.
- do not place blades on their top or bottom surfaces
- always handle blades by the faceplate

Product Warning Labels

Product warning labels warn service personnel of any potential hazards. To prevent personal injury, equipment damage, or service interruptions, follow all precautionary messages found on product safety labels and in the product documentation, as well as the safety procedures established by your company.

Electrostatic Discharge (ESD) Rules

The following sections provide rules to prevent risk of damage from ESD:

- ESD Hazards on page 4
- ESD Prevention Rules on page 4

ESD Hazards



ALERT

ALERT! To prevent equipment damage from electrostatic discharge, always ensure that the system chassis is electrically connected to earth ground. Always follow ESD prevention procedures when removing and replacing power supplies. Use an antistatic wrist strap, or another antistatic device. If no wrist strap or mat is available, ground yourself by touching the metal part of the chassis.

ESD Prevention Rules

Take these precautions to minimize the risk of damage from ESD:

- always observe proper ESD handling techniques and use of personal grounding devices when working on shelves, cables connected to blades, and blades
- test the integrity of the ESD-preventative wrist or ankle strap daily. The resistance value should be between 1 and 10 megaohms.
- ensure that the ESD-preventive strap makes good contact with skin
- do not permit system components or blades to contact clothing. ESD protection is only effective for the body.
- install system blades (as applicable) immediately after removal from the antistatic packaging. All ESD-sensitive TIBCO equipment is provided in antistatic packaging.

System Blade Rules

All P-7500 system blades are subject to damage from rough handling or from electrostatic discharge. To avoid damage, system blades that are shipped separately from the shelf come in antistatic packaging.

You must follow these rules to prevent damage to blades:

- Blade Handling Rules on page 5
- Blade Installation (and Replacement) Rules on page 5
- Blade Storage Rules on page 6
- Blade Transport Rules on page 6

Blade Handling Rules

Follow these rules when handling P-7500 system blades:

- always observe proper ESD handling techniques and use of personal grounding devices before removing a blade from its package
- protect each blade that is not in active use on the shelf by storing each one separately in antistatic packaging
- handle each blade by the faceplate
- do not touch the solder side of the blade, pin connectors, or any exposed components
- do not stack blades on or against each other
- do not force blades into their packaging material

Blade Installation (and Replacement) Rules

Follow these rules when installing or replacing P-7500 system blades:

- always observe proper ESD handling techniques and use of personal grounding devices when before installing a blade into the Fabric Expansion Cartridge (FEC)
- blades must reach room temperature before being inserted in the FEC
- inspect all blades, including pin connectors and soldering, for damage before inserting into the FEC
- do not force a blade into a slot

- blades that have potentially hot surfaces can cause burns. When handling these blades, take the necessary precautions.

Blade Storage Rules

Follow these rules to prevent damage to spare system blades while in storage:

- always leave blades in their original antistatic packaging and storage containers until you need them
- ensure that the ambient temperature of the equipment storage location never exceeds 50°C (122°F)

Following these blade storage rules prevents:

- accumulation of dirt or dust on the blade pin connectors
- damage to the blade or its components
- warping of spare blades due to storage areas where the humidity can exceed 95 percent and the temperature can exceed 70°C (158°F)

Blade Transport Rules

When transporting P-7500 blades, pack each blade in its original antistatic packaging, shielded container, and padding. If the original packaging material is not available, use another shielded container.

Chapter 2 **Preparing Your Site**

This chapter provides information about preparing your site before installing a TIBCO Messaging Appliance P-7500 system. TIBCO recommends that you consider all requirements and specifications described in this chapter before installing the system.

Topics

- *Preinstallation Responsibilities, page 8*
- *Environmental Requirements, page 9*
- *Safety Guidelines, page 10*
- *Rack Requirements, page 12*
- *Cabling Recommendations, page 14*
- *Ethernet Port Wiring Specifications and Signaling, page 15*
- *RS-232 Serial Console Port Pinouts, page 16*

Preinstallation Responsibilities

Complete these tasks before installing the system:

1. Verify that the electrical supply meets all power requirements:
 - Appendix A, Connections, LEDs, and Specifications, on page 47.
2. Verify that the site meets all environment specifications:
 - “Environmental Requirements” on page 9
 - Appendix A, Connections, LEDs, and Specifications, on page 47
3. Verify that the cables you plan to use meet the specifications, and review the cabling recommendations:
 - “Cabling Recommendations” on page 14
4. Verify the operation of all telephone circuits, digital services, and Internet Protocol (IP) facilities required for installation.
5. Ensure that all IP environment requirements are met, such as default gateway address, port IP address and mask, management Ethernet port IP address and mask, and broadcast address.

Environmental Requirements

Choose a location for the P-7500 system that is dry, relatively dust free, well ventilated, and air conditioned. Ensure that the floor is capable of supporting the combined weight of the rack and the installed equipment. Place the P-7500 system in a location with sufficient access to power and network cables.

Like other network devices, the P-7500 system generates a significant amount of heat. It is important to provide a balanced environment so that the P-7500 system performs properly and safely. Refer to Appendix A, Connections, LEDs, and Specifications, on page 47 for acceptable ranges of temperature and humidity.

Allow enough space around the P-7500 system for adequate ventilation. Inadequate ventilation can cause the system to overheat. Refer to Appendix A, Connections, LEDs, and Specifications, on page 47 and Chapters 2 and 3 of this document for details about space requirements.



ALERT

ALERT! Do not block the fan vents on the P-7500 system. Otherwise, the system can overheat.

Safety Guidelines

For your safety, before installing the P-7500 system, review and follow all safety warnings specified in this section.



WARNING

WARNING! The P-7500 system is intended for installation and use in RESTRICTED ACCESS LOCATIONS ONLY. A restricted access location is one where access can only be gained by qualified 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.



ALERT

ALERT! The recommended maximum ambient operating temperature for the system is 104° F (40° C). To prevent equipment damage, always consider the internal temperature of the rack for safe operation of the system.



ALERT

ALERT! Install equipment in the rack from the bottom upward. This maintains the stability of the rack and reduces the chance of the rack tipping over.



ALERT

ALERT! Connect the rack to ground (earth), and ensure that a reliable earthing path is maintained in the rack to prevent equipment damage from electrostatic discharge. When you install the system, the ground connection must always be made first and disconnected last.



WARNING

WARNING! Do not work on the P-7500 system or connect or disconnect cables during electrical storms. If you proceed, you are exposed to avoidable risk of severe injury or death from electrocution.



ALERT

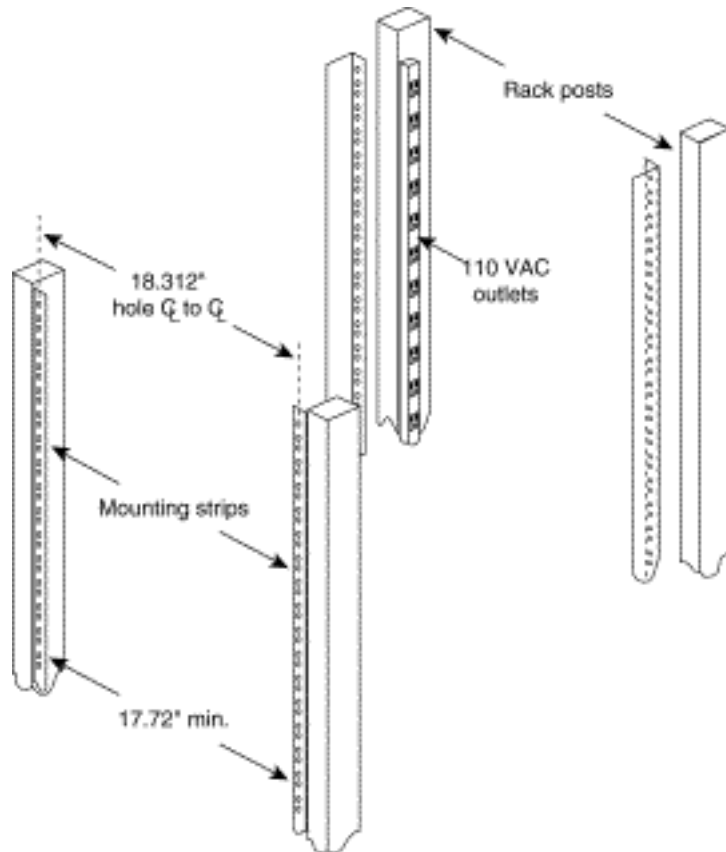
ALERT! Always evaluate the overall loading of the power source circuit before you install any new system equipment into a rack. Failure to do so can result in serious equipment damage.

Rack Requirements

Use an open style, 19-inch rack to facilitate easy maintenance and to provide proper ventilation. Only four-post mounting is recommended for the P-7500 system due to the weight of the system.

Racks should conform to conventional standards (Figure 1). In the United States, use EIA Standard RS-310C: Racks, Panels, and Associated Equipment. In countries other than the United States, use IEC Standard 297. In addition, verify that your rack meets the basic mechanical and space requirements described in this section.

Figure 1 Typical Four-post, 19-inch Equipment Rack



Use racks that meet these mechanical recommendations:

- the rack should use the universal mounting rail hole pattern identified in IEC Standard 297
- the mounting holes should be flush with the rails to accommodate the system chassis
- the rack should be made of steel or aluminum
- the rack should have equipment installed into the lower half first to avoid making the rack top-heavy
- the fully loaded rack should be able to structurally support 600 pounds (272 kilograms)

Cabling Recommendations

Cabling should comply with these recommendations:

- examine cables for cuts, bends, and nicks. Replace where necessary.
- ensure that cable distance and rate limits meet IEEE-recommended maximum speeds and distances for signaling purposes
- ensure that power cables deliver sufficient power to the system
- route cables so that they do not restrict ventilation or airflow
- route cables so that blades and field-replaceable units are easily accessible
- route cables in a logical direction to prevent loss of connectivity to other equipment in the rack, associated equipment in adjacent racks, or to the backbone network
- consider using cable-management brackets to keep network cables untangled and orderly and to prevent cables from hindering access to other slots

Ethernet Port Wiring Specifications and Signaling

Refer to the Network Acceleration Blade chapter in the *TIBCO Messaging Appliance P-7500 Operations Guide* for details on the 2-port 10GigE and 8-port 1GigE Network Acceleration Blades (NABs), NAB-0210EM and NAB-0801ET, respectively, including Ethernet port wiring specifications and signaling.

RS-232 Serial Console Port Pinouts

Refer to Table 3 for the pinout information for the RS-232 serial console port located on the rear panel of the P-7500.

Table 3 RS-232 Serial Console Port Pinouts

Pin	Signal Name	Description
1	RTS	Request To Send
2	DTR	Data Terminal Ready
3	TXD	Transmit Data
4	GND	Ground
5	RI	Ring Indicate
6	RXD	Receive Data
7	DSR	Data Set Ready
8	CTS	Clear To Send

TIBCO Messaging Appliance P-7500 Installation



WARNING

WARNING! Allow only trained and qualified service personnel to install P-7500 equipment and power supplies. Removal of equipment covers voids warranty.

NOTICE

NOTICE: Ensure that you thoroughly read and understand the information and safety guidelines contained in Chapter 2, *Preparing Your Site*, on page 7 before you begin.

This chapter describes how to install and power up the TIBCO Messaging Appliance P-7500 system.

Topics

- *Rack-Mount Requirements, page 18*
- *Tool and Equipment Requirements, page 21*
- *Management Console Requirements, page 22*
- *Inserting and Removing SFP+ Modules, page 23*
- *Step 1: Move and Verify the Equipment Received, page 29*
- *Step 2: Unpack the Equipment, page 30*
- *Step 3: Install the Rack Kit, page 33*
- *Step 4: Install the System Chassis in the Four-Post Rack, page 39*
- *Step 5: Install the Fan Tray and Faceplate, page 40*
- *Step 6: Install the Power Supplies and Blanking Plate, page 42*
- *Step 7: Connect the Management Console, page 43*
- *Step 8: Connect the System to an AC-Input Power Supply, page 44*

Rack-Mount Requirements

Only four-post mounting is recommended for the P-7500 system due to the weight of the system.

One rack kit is supplied with the P-7500 system in the shipping crate. The rack kit is required for each system to be installed in a four-post 19-inch rack.

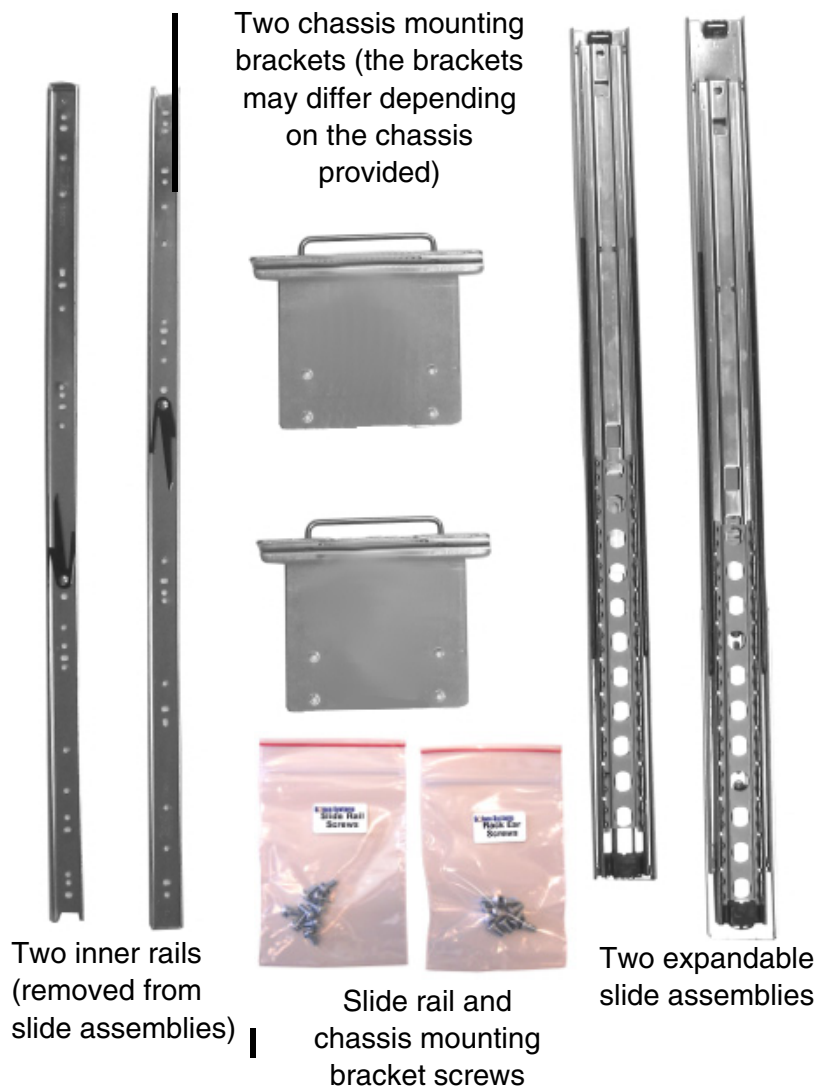
The rack kit consists of:

- two chassis mounting brackets with handles
- eight No. 8 Phillips screws to attach the mounting brackets
- eight No. 6 pan-head Phillips screws to attach the inner rails to the chassis
- a slide assembly hardware package. In this package there are two inner rails and two slide assemblies that can be adjusted for a rack depth of 22.5 to 38 in. These are required items.



Note: This package also contains four L brackets, ten M4 pan-head screws, and 16 M5 pan-head screws. These are extra items that could possibly be used to secure the slide assembly mounting-bracket flanges to the rack posts. If these items are not suitable for your rack posts, they can be discarded.

Figure 2 Rack Kit Contents



- the rack rails must be spaced widely enough to accommodate the system chassis's external dimensions: 7 inches (177.8 mm) high (that is, 4U), 17 inches (431.8mm) wide, and 31 inches (787.4 mm) deep
- the rack must be strong enough to support the weight of the fully configured system, up to about 80 lb (36.3 kg)

- for service personnel to remove and install hardware components, there must be adequate space at the front and back of the system. Allow at least 2.5 feet (76.2 cm) both in front of and behind the system.
- the rack or cabinet must have an adequate supply of cooling air
- in a closed cabinet, there must be a minimum of 6 inches (15.2 cm) of unobstructed airflow behind the system. Otherwise, airflow baffles must be installed to prevent recirculation of hot air and overheating.
- the system should be mounted at the bottom of the rack if it is the only unit in the rack
- when mounting the system in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack. Load the heaviest item in the rack first.
- check that the rack is level and stable before extending a component from the rack
- use caution when pressing the component rail release latches and sliding a component into or out of a rack. The slide rails can pinch your fingers.
- after a component is inserted into the rack, carefully extend the rail into a locking position, and then slide the component into the rack
- allow 4U (7 inches) of vertical space for each P-7500 you install in the rack

Tool and Equipment Requirements

The following tools and equipment are required to install a P-7500 system:

- standard protective equipment such as eye protection, work gloves, and protective footwear
- scissors (for cutting nylon straps)
- no. 2 Phillips screwdriver
- masking tape or a felt-tip pen (for use in marking the rack mounting holes to be used)
- adjustable pliers or wrench
- tape measure
- observation of proper ESD handling techniques and use of personal grounding devices when working on shelves, cables connected to blades, and blades



Note: One rack kit is supplied with the P-7500 system in the shipping crate, and required for each system to be installed in the rack.

Management Console Requirements

For initial access to the P-7500 system without an IP address, you must:

1. Set up a management console, a standard computer running terminal emulation software to communicate with the system (you can use any terminal emulation program). The console allows you to configure the system without an IP address, using the P-7500 Command Line Interface (CLI).

The default baud rate setting is 115,200 bps for the system's RS-232 serial console port, with:

- data bits set to 8
- parity set to none
- stop bits set to 1
- flow control set to none



Note: The computer and terminal emulation software are not provided by TIBCO. Also, some terminal emulation software may require you to manually change the **Return** key setting so that it does not send double carriage returns to the system. A double carriage return setting might unintentionally skip required configuration steps (by using defaults) when running the `setup` Privileged EXEC command.

2. Connect the management console directly to the system's RS-232 serial console port located on the rear panel of the P-7500 using the provided straight-through RS-232 cable (with DB-9/RJ-45 connectors).

This allows you to directly communicate with the P-7500 after it is powered up to quickly configure it using the `setup` Privileged EXEC command in the P-7500 CLI.

3. Gently slide the SFP+ module into the port until the actuator/button clicks into place.



Note: For some laptop computers, a customer-supplied DB-9 to Universal Serial Bus (USB) serial converter is required for the management console port.

Inserting and Removing SFP+ Modules

This section describes how to insert and remove SFP+ modules from NAB-02010EM.

The modules can have any of three different types of latching devices to secure and detach themselves from a NAB port. The three types of latching devices used with SFP+ modules are:

- Mylar Tab
- Actuator/Button
- Bale-Clasp

ALERT

ALERT! Protect your optical SFP+ modules by inserting clean dust plugs into them after the fiber cables are extracted from them. Be sure to clean the optic surfaces of the fiber cables before you plug them back into the optical bores of another SFP+ module. Avoid getting dust and other contaminants into the optical bores of your SFP+ modules as the optics do not work correctly when obstructed with dust.

ALERT

ALERT!

- Always follow ESD prevention procedures when removing or inserting SFP+ modules and their components. Use an antistatic wrist strap, or another antistatic device. If no wrist strap or mat is available, ground yourself by touching the metal part of the router chassis.
- Always wear a grounded wrist strap when working on the router equipment.
- Treat all assemblies, components, and interface connections as static-sensitive.
- Avoid working in carpeted areas and keep body movement to a minimum while removing or installing SFP+ modules to minimize buildup of static charge.

! ALERT

ALERT! When hot swapping SFP+ modules, allow at least 15 seconds for the router to reinitialize the port. Also, note the current configuration of all interfaces before you remove or insert another SFP+ module so that you can revert back if necessary.

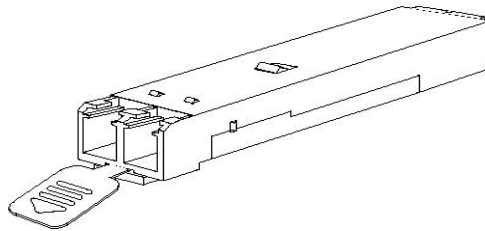
Mylar Tab SFP+ Modules

⚠ WARNING

WARNING! Invisible laser radiation may be emitted from disconnected optical fibers or connectors. Do not look into fiber or connectors or view directly with optical instruments.

The Mylar tab SFP+ module (Figure 3) has a tab that you must pull to remove the module from a NAB port.

Figure 3 Mylar Tab SFP+ Module



To insert a Mylar tab SFP+ module into a NAB port, follow this procedure:

1. Line up the SFP+ module with the port, with the printed label facing up.

! ALERT

ALERT! Do not remove the rubber protectors on the end of optical SFP+ modules until they are installed and ready for cable connection and use. This is to avoid getting dust and other contaminants into the optical bores of your SFP+ modules as the optics do not work correctly when obstructed with dust.

2. Gently slide the SFP+ module into the port.
3. Gently press the SFP+ module into the port until it is firmly seated.
4. Connect the cable.

You have completed this procedure.

To remove a Mylar tab SFP+ module from a NAB port, follow this procedure:

1. Remove the cable connected to the SFP+ module, if any.
2. Grasp the Mylar tab between your thumb and index finger.
3. Carefully pull towards you, in a straight outward motion, the SFP+ module from the port.



ALERT

ALERT! When pulling the Mylar tab to remove the SFP+ module, be sure to pull in a straight outward motion so that you remove the module from the port in a parallel direction. Do not twist the Mylar tab while pulling because you may disconnect it from the SFP+ module.

You have completed this procedure.

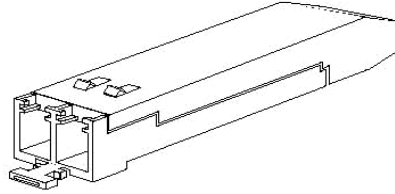
Actuator/Button SFP+ Modules



WARNING

WARNING! Invisible laser radiation may be emitted from disconnected optical fibers or connectors. Do not look into fiber or connectors or view directly with optical instruments.

The actuator/button SFP+ module (Figure 4) has a button that you must push to remove the module from a NAB port.

Figure 4 Actuator/Button SFP+ Module

To insert an actuator/button SFP+ module into a NAB port, follow this procedure:

1. Line up the SFP+ module with the port, with the printed label facing up.



ALERT

ALERT! Do not remove the rubber protectors on the end of optical SFP+ modules until they are installed and ready for cable connection and use. This is to avoid getting dust and other contaminants into the optical bores of your SFP+ modules as the optics do not work correctly when obstructed with dust.

2. Gently slide the SFP+ module into the port until the actuator/button clicks into place.



Note: Be careful not to press the actuator/button as you insert the SFP+ module because you may inadvertently disengage the module from the port.

3. Connect the cable.

You have completed this procedure.

To remove an actuator/button SFP+ module from a NAB port, follow this procedure:

1. Remove the cable connected to the SFP+ module, if any.
2. Gently press the actuator/button on the front of the SFP+ module until it clicks and the latch mechanism activates, releasing the module from the port.
3. Grasp the actuator/button between your thumb and index finger, and carefully pull the SFP+ module towards you out from the port.

You have completed this procedure.

Bale-Clasp SFP+ Modules

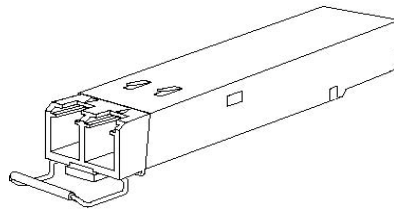


WARNING

WARNING! Invisible laser radiation may be emitted from disconnected optical fibers or connectors. Do not look into fiber or connectors or view directly with optical instruments.

The bale-clasp SFP+ module (Figure 5) has a bale clasp that you use to secure the module in a NAB port.

Figure 5 Bale-Clasp SFP+ Module



To insert a bale-clasp SFP+ module into a NAB port, follow this procedure:

1. Close the bale-clasp before inserting the SFP+ module.
2. Line up the SFP+ module with the port, with the printed label facing up.



ALERT

ALERT! Do not remove the rubber protectors on the end of optical SFP+ modules until they are installed and ready for cable connection and use. This is to avoid getting dust and other contaminants into the optical bores of your SFP+ modules as the optics do not work correctly when obstructed with dust.

3. Gently slide the SFP+ module into the port.
4. Gently press the SFP+ module into the port until it is firmly seated.
5. Connect the cable.

You have completed this procedure.

To remove a bale-clasp SFP+ module from a NAB port, follow this procedure:

1. Remove the cable connected to the SFP+ module, if any.

2. Open the bale clasp on the SFP+ module with your index finger in a downward direction.



Note: If the bale clasp is obstructed and you cannot use your index finger to open it, use a small, flat-blade screwdriver or other long, narrow instrument to open the bale clasp.

3. Grasp the SFP+ module between your thumb and index finger, and carefully pull the module towards you out from the port.

You have completed this procedure.

Step 1: Move and Verify the Equipment Received



CAUTION

CAUTION! Heavy equipment. The P-7500 equipment container weighs approximately 150 lbs (70 kg). Get additional people to help move heavy equipment to avoid personal injury.

Perform these steps to move the P-7500 equipment container to the appropriate location:

1. Assign one person to lift each side of the shipping container.
2. Move the equipment, in the shipping container, to an empty area near the installation site.
3. Gather the boxes that contain the equipment in one location and arrange them so the labels are visible.

You have completed this procedure.

Perform these steps to verify that all the P-7500 equipment required for the installation has been received:

1. Collect the packing slips from the outside of each box.
2. Match the models and serial numbers on the packing slip with the numbers on the boxes and with the Bill of Materials (BOM).
3. Check off each item on the packing list as you find it.
4. Make a list of any missing items and give the list to your TIBCO representative.

You have completed this procedure.

Step 2: Unpack the Equipment



CAUTION

CAUTION! Wear safety goggles and other appropriate personal safety equipment when unpacking equipment. The banding used to secure the packaging is under pressure and could cause injury when cut.

The P-7500 system has a Fabric Expansion Cartridge (FEC) and appliance blades that are preinstalled in the chassis. It is shipped in one box that contains the power supplies, rack kit, other required accessories, and chassis.

Perform the following steps to unpack the P-7500 equipment:

1. Use the scissors to cut the nylon bands holding the two shipping containers together.
2. Remove the outer cardboard sleeve to reveal the inner packing boxes.
3. Open the box containing the chassis, power supplies, rack kit, and other required accessories.
4. Remove the protective foam pad from the top of the box.
5. Remove the power supplies, inner rails, and slide assemblies from the first foam container, and remove the plastic bags that enclose the equipment (if present).

Figure 6 Contents of First Foam Container



6. Remove the protective foam pad.
7. From the second foam container, remove the fan tray, faceplate, and cables from the second foam container, and remove the plastic bags that enclose the equipment (if present).

Figure 7 Contents of Second Foam Container



8. Remove the chassis equipment from the shipping container and remove the plastic bags that enclose the equipment.
9. Remove the packing materials from the area.



Note: Do not dispose of the packing materials until the installation is successfully completed. Should any of the components need to be returned to TIBCO, you can reuse the original packaging.

10. Once the installation is completed, dispose of the packing materials, as specified in your local procedures.

If your local procedures require you to keep the packing materials, store them in a safe place. Otherwise, dispose of the materials as local procedures permit.

You have completed this procedure.

Step 3: Install the Rack Kit

One rack kit is supplied with the P-7500 equipment in the shipping crate to install the system in a four-post 19-inch rack, and is required for each system to be installed in the rack.

Perform these steps to install the rack kit:

1. To attach the mounting brackets to the front of the system chassis:
 - a. Place the P-7500 chassis on a flat surface with the front facing toward you.
 - b. Locate one of the two mounting brackets and align it over the four threaded mounting holes on the front right-hand side of the system.
 - c. Secure the bracket to the system chassis using four of the provided flat-head No. 8 Phillips screws and fully tighten, using a No. 2 Phillips screwdriver.

If your P-7500 system uses a CHS-7500AC-01-A chassis, which requires the inner rails to be mounted on the middle of the side of the chassis, refer to Figure 8; if your P-7500 system uses chassis CHS-7500AC-02-A, which requires the inner rails to be mounted on the bottom of the side of the chassis, refer to Figure 9.

Figure 8 Securing the Mounting Brackets on a CHS-7500AC-01-A chassis

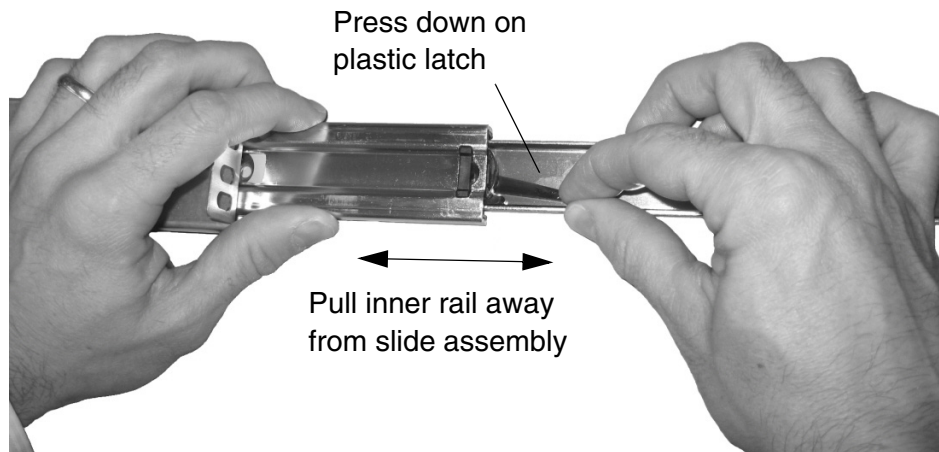


Figure 9 Securing the Mounting Brackets on a CHS-7500AC-02-A



- d. Repeat step b and step c for the left side of the chassis.
2. To install the inner rails to the sides of the system chassis:
 - a. Extend the inner rail from a slide assembly until the plastic release latch is visible.
 - b. Push down on the plastic release latch while pulling on the inner rail to remove it from the slide assembly (refer to Figure 10).

Figure 10 Removing the Inner Rail from the Slide Assembly



- c. If you are using a CHS-7500AC-01-A chassis, attach the inner rails to the middle of the side of the chassis using four of the provided No. 6 pan-head

Phillips screws, with the open end of the rail toward the back of the chassis. Fully tighten the screws using a No. 2 Phillips screwdriver (refer to Figure 11). Repeat this step for the other side of the chassis.

Figure 11 Securing the Inner Rails on a CHS-7500AC-01-A Chassis



- d. If you are using a CHS-7500AC-02-A chassis, attach the inner rails to the bottom of the side of the chassis using four of the provided No. 6 pan-head Phillips screws, with the open end of the rail toward the back of the chassis. Fully tighten the screws using a No. 2 Phillips screwdriver (refer to Figure 11). Repeat this step for the other side of the chassis.

Figure 12 Securing the Inner Rails on a CHS-7500AC-02-A Chassis

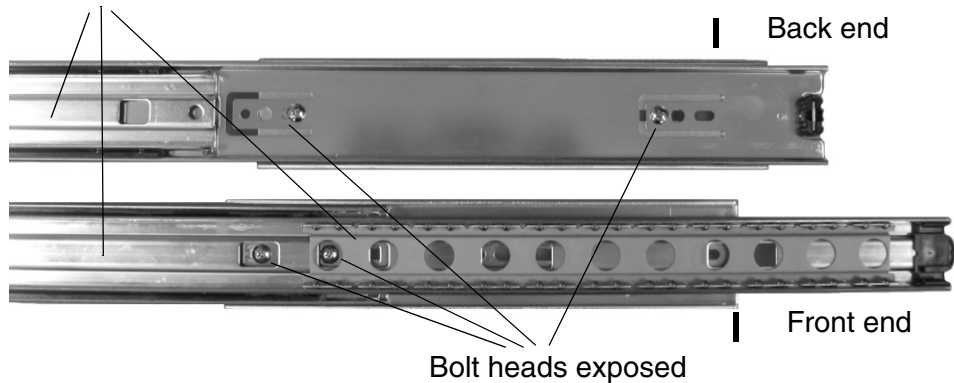


3. To adjust the slide assemblies for a 22.5–26.5 in. deep rack, perform the following steps. (If your rack is 26.75–38 in. deep, refer to 4.)
 - a. Using a tape measure, measure the distance between the front and rear rack rails.
 - b. Move the inner sliders to access the heads of the bolts securing the rear mounting bracket to the outer rail of one of the slide assemblies.

Figure 13 shows how the inner slide assembly can be repositioned so that both bolt heads for the front and rear mounting brackets are accessible.

Figure 13 Accessing Mounting Bracket Bolt Heads

Slide assemblies
repositioned



- c. Using a No. 2 Phillips screwdriver and an adjustable wrench or pliers, loosen the bolts holding the bracket.
 - d. Slide the mounting bracket to a position that provides the correct length, and fully tighten the mounting bracket bolts.

The rail should be able to fit snugly into the rack.



Note: To gain additional length, you may have to reposition the front mounting bracket.

- e. Repeat step a through step d for the other slide assembly.



Note: To ensure the sliding assembly works properly, set the mounting brackets in the same position for both slide assemblies.

4. For a 26.75–38 in. deep rack, one or both of the mounting brackets used by the slide assemblies must be removed and repositioned to lengthen the slide assemblies.

To adjust the slide assemblies for a 26.75–38 in. deep rack, perform the following steps:

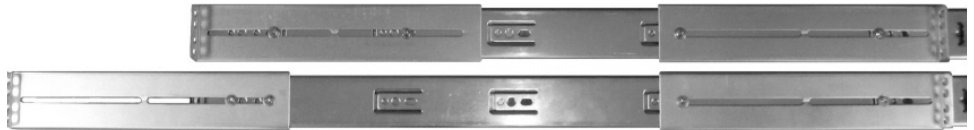
- a. Using a tape measure, measure the distance between the front and rear rack rails.
- b. Move the inner sliders of one of the slide assemblies to access the heads of the bolts securing the rear mounting-bracket to the outer rail.
- c. Using a No. 2 Phillips screwdriver and an adjustable wrench or pliers, remove the bolts holding the mounting bracket.
- d. Move the bracket to a position that provides the correct length.

In Figure 14, the standard configuration of the front mounting bracket is shown at top. The bottom slide assembly shows an extended configuration. Notice the positioning of the screws that is required for the extended bracket.



Note: To gain additional length, you may have to reposition both mounting brackets.

Figure 14 Sample Bracket Positions



- e. Tightly refasten the bolts and nuts that hold the mounting-brackets to the slide assembly.

The rail should be able to fit snugly into the rack.

- f. Repeat step b through step e for the other slide assembly.
5. To install the slide assemblies in the rack:
 - a. Mark the rack's front vertical rails with a felt-tipped marker or place masking tape where the upper and lower edges of the system's 4U space will be located.
 - b. If you are using a CHS-7500AC-01-A chassis, at the front of the rack, position the slide assemblies so that their mounting-bracket flanges are

directly centered between the marks or tape you placed on the rack (that is, between the 2U and 3U space within the upper and lower markings of the system's 4U space).

To assist with positioning the mounting-bracket flanges, refer to the EIA Standard Rack Mounting Template for that is supplied with the P-7500 Router in the shipping crate.

- c. If you are using a CHS-7500AC-02-A chassis, at the front of the rack, position the slide assemblies so that their mounting-bracket flanges are at the bottom of the 1U space for the system's 4U space.
- d. Secure the front and rear of the mounting-bracket flanges with the required screws (not provided) in the front vertical rail and fully tighten.

You have completed this procedure.

Step 4: Install the System Chassis in the Four-Post Rack

Only four-post mounting is recommended for the P-7500 system due to the weight of the system.



CAUTION

CAUTION! Due to the size and weight of the P-7500 system, never attempt to install the system in the rack by yourself.



WARNING

WARNING! Never pull more than one component out of the rack on its slide assemblies at one time. The weight of more than one extended component could cause the rack to tip over and injure someone.

NOTICE

NOTICE: Ensure that you have the required screws available to secure the system to the 19-inch rack. These are not provided with the system.

To install the P-7500 chassis in the rack:

1. Pull the two interior slide assemblies out of the rack.
2. Lift the system into position in front of the extended slides.
3. Align the inner rails with the open portion of the slide assemblies.
4. Push the system into the slide assemblies until the system stops.
5. Secure the front of the mounting-bracket flanges with suitable screws (not provided) to secure the system to the rack and fully tighten.



ALERT

ALERT! Ensure that ventilation holes are not obstructed. Leave enough space around the system for adequate ventilation or equipment damage can occur.

You have completed this procedure.

Step 5: Install the Fan Tray and Faceplate

To install the fan tray and faceplate on the P-7500 system after installing the chassis in the rack, perform these steps:

1. Position the fan tray assembly so that the four thumbscrews and rear power connector align with the front of the chassis (refer to Figure 15).

Figure 15 Installing the Fan Tray



2. Press firmly in on the fan tray until its male power connector engages with the female chassis connector.
3. Hand tighten the four captive thumbscrews in each corner of the fan tray to seat it firmly against the chassis.
4. Position the faceplate over the installed fan tray so that the bezel (front) aligns with the front of the chassis.
5. Align the four male push pins in the four corners of the faceplate with the female receptacles on the chassis.
6. Press firmly in on the faceplate until the push pins engage, and the faceplate is flat against the front of the chassis (refer to Figure 16).

Figure 16 Installing the Faceplate



You have completed this procedure.

Step 6: Install the Power Supplies and Blanking Plate

Typically, four power supplies (provided) should be installed in each P-7500.

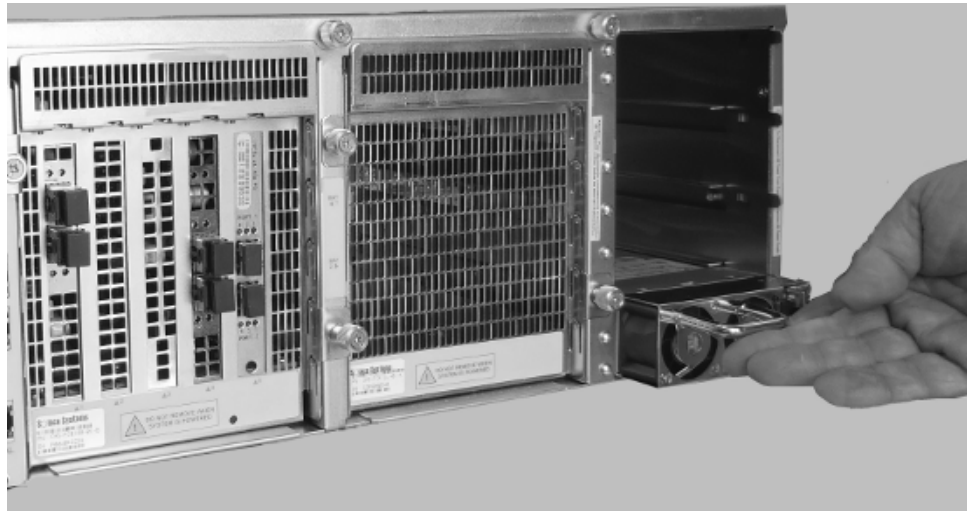
To install the P-7500 power supplies:

1. Allow the power supplies to reach room temperature before installing.
2. Ground yourself by using an antistatic wrist strap or other device.
3. Inspect the power supply for damage.

Make sure that the pins and electrical connections are not damaged.

4. Align the power supply within the bottom right-hand chassis slot, and gently slide it in (refer to Figure 17).

Figure 17 Inserting the Power Supply



5. Push the power supply into place until you feel its edge connector mate securely with the connector on the backplane.

Tighten by hand the captive screw located above the AC-input power connector to secure the power supply in the chassis slot.

6. Repeat this procedure to install each additional power supply.

You have completed this procedure.

Step 7: Connect the Management Console

Before you power up the P-7500 system in Step 8: Connect the System to an AC-Input Power Supply on page 44, you must set up a management console. The console allows you to configure the system without an IP address, using the P-7500 CLI.

For initial access to the P-7500 system, you must physically connect the management console directly to the system's serial console port. This connection allows you to use the CLI to set an IP address on the system. Once you configure the IP address, you can access the P-7500 remotely. Follow these steps:

1. Connect the provided straight-through RS-232 cable (with DB-9/RJ-45 connectors) to the RS-232 serial console port located on the rear panel of the P-7500.

Refer to Appendix A, Connections, LEDs, and Specifications, on page 47 for location.

2. Connect the other end of the cable to the DB-9 serial port on the management console.

You have completed this procedure.



Note: For some laptop computers, a customer-supplied DB-9 to Universal Serial Bus (USB) serial converter is required for the management console port.

Step 8: Connect the System to an AC-Input Power Supply

NOTICE

NOTICE: The P-7500 system is available with up to four redundant AC hot-swappable power supplies (PS1 through PS4) in bays at the rear of the system.

Two installed power supplies meet the system requirements. The third and fourth installed power supplies provide redundancy, load sharing, and increased system availability, and can be removed (or inserted) without affecting system operation.

The total power required by the P-7500 system under full message load is 600W. This power is shared among the number of power supplies installed.

The procedures described in this section are intended for the qualified power supply installer, who should have experience with electronic circuitry and wiring practices. Use the following information in conjunction with the safety information contained herein and the safety guidelines listed in Chapter 2, Preparing Your Site, on page 7.

When initially installing the P-7500 system or changing the power cabling, verify the power sources by checking that both power supply LEDs are green after the system powers up.

If you encounter problems when you power on the P-7500 system, check these items:

1. With the power on, is the blue PWR LED on the front panel on?
 - If not, check the AC input, AC source, system circuit breaker, and the power supply cable (AC).
 - If the blue PWR LED is still off, the problem might be a power supply failure. Verify that the Green LED located in the upper right-hand corner of each power supply is on.
2. Does the system shut down after being on a short time?
 - Check the fans. If the fans are not working, the system overheats and shuts itself down.
 - Ensure that the chassis intake and exhaust vents are clear.

If you have questions or need help, contact your TIBCO engineer.

ALERT

ALERT! To prevent equipment damage from electrostatic discharge, always ensure that the system chassis is electrically connected to earth ground. Always follow ESD prevention procedures when removing and replacing power supplies. Use an antistatic wrist strap, or another antistatic device. If no wrist strap or mat is available, ground yourself by touching the metal part of the

ALERT

ALERT! If one of the redundant power supplies in your system is found to be defective, TIBCO recommends that you leave the defective power supply in the system until the replacement unit arrives to ensure that correct airflow is maintained in the system. Refer to *TIBCO Messaging Appliance P-7500 Maintenance and Troubleshooting* for the hot swap replacement procedure.

WARNING

WARNING! To avoid the risk of personal injury or death from electric shock, before performing any of the following power supply procedures, unplug the power cord from the power source outlet on AC units.

The P-7500 system with an AC-input power supply has a three-pronged International Electrotechnical Commission (IEC) connector for an AC power cord. To turn on power for P-7500 systems:

1. Verify that an appropriate AC power source is operational and turned on.

WARNING

WARNING! AC-powered systems rely on the building's installation or power supply for overcurrent protection. Ensure that a listed and certified fuse or circuit breaker is used to protect the system from short circuits.

2. For each installed power supply, connect the supplied AC power cord first to the power connector located on the AC-input power supply, then into a three-terminal, single-phase power source that provides AC power within the acceptable range.

3. Press the 1/0 button on the front panel of the P-7500 system, located on the right-hand side below the LEDs, to turn power on to the system.
4. Monitor the LEDs on the front of the system to verify that it is powering up properly.

Refer to Appendix A, Connections, LEDs, and Specifications, on page 47 for LED status explanation.

5. Verify that the Green LED located in the upper right-hand corner of each power supply is on.
6. The CLI login prompt displays on your management console screen:

```
TIBCO release 8.3.0.0100  
tibco login:
```

You have completed this procedure.

Appendix A **Connections, LEDs, and Specifications**

This appendix describes panel views, connections and LEDs, and system specifications for TIBCO Messaging Appliance P-7500 systems.

Topics

- *Front Panel View of TIBCO Messaging Appliance P-7500 System, page 48*
- *Rear Panel View of TIBCO Messaging Appliance P-7500 System, page 50*
- *Technical Specifications for TIBCO Messaging Appliance P-7500, page 52*

Front Panel View of TIBCO Messaging Appliance P-7500 System

Figure 18 shows the front panel view of the P-7500 system, and Table 4 describes the LED behavior.

The two recessed buttons located below the LEDs provide the mechanisms for manually resetting the system. Labeled 1/O and RST, these buttons can be activated with a paper clip:

- the 1/O button can be used to toggle system power on or off
- the RST button can be used to immediately reset and restart the system without the cooperation of any software or operating system on the system



ALERT!

ALERT! Do not use the 1/O or RST buttons unless necessary. For example, if a system fails to respond for an extended time period, use of one of these recessed buttons might be necessary to correct the issue. However, both these recessed buttons cause a disruption to service because they restart the system.

Figure 18 Front Panel View of P-7500 System

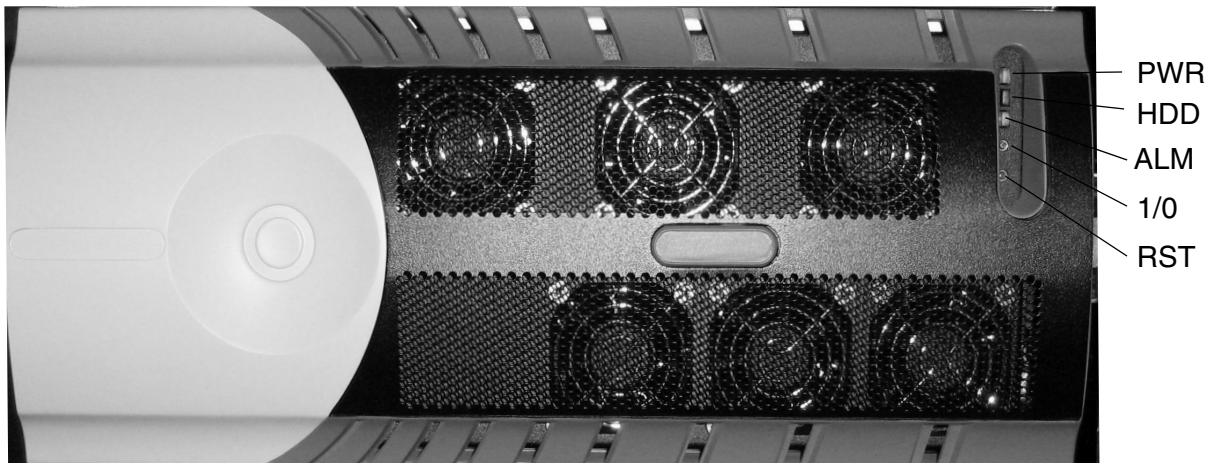


Table 4 Behavior of P-7500 System LEDs

Field Name	Color	Lit Indicates	Unlit Indicates
PWR	Blue	Power is on.	Power is off.
HDD	Blue	Hard Disk Drive (HDD) is being accessed.	Ok
ALM	Red	<p>The ALM LED flashes until the software successfully turns up on the P-7500 system. If the flashing continues for longer than 10 minutes, this means the system has failed to turn up. A common cause is that there is only one power supply installed or working.</p> <p>Two installed and working power supplies are required for the P-7500 to turn up successfully. If you require assistance, contact TIBCO.</p>	Ok

Rear Panel View of TIBCO Messaging Appliance P-7500 System

All connections for the P-7500 system are found at the rear of the device.

Figure 19 shows the rear panel view and connections of the P-7500 system with Network Acceleration Blade (NAB)-0210EM.

Figure 20 shows the rear panel view and connections of the P-7500 system with NAB-0801ET.

Table 5 lists the valid blade slot assignments for the P-7500 Fabric Expansion Cartridge (FEC).

Figure 19 Rear Panel View and Connections of P-7500 System with NAB-0210EM

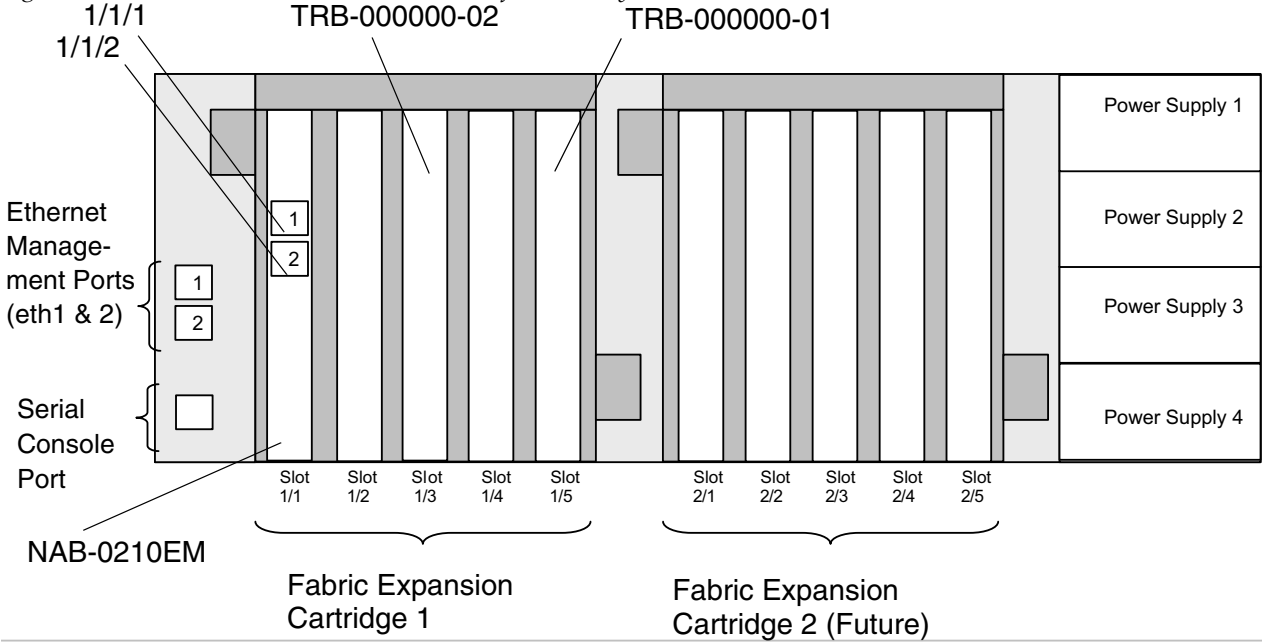


Figure 20 Rear Panel View and Connections of P-7500 System with NAB-0801ET

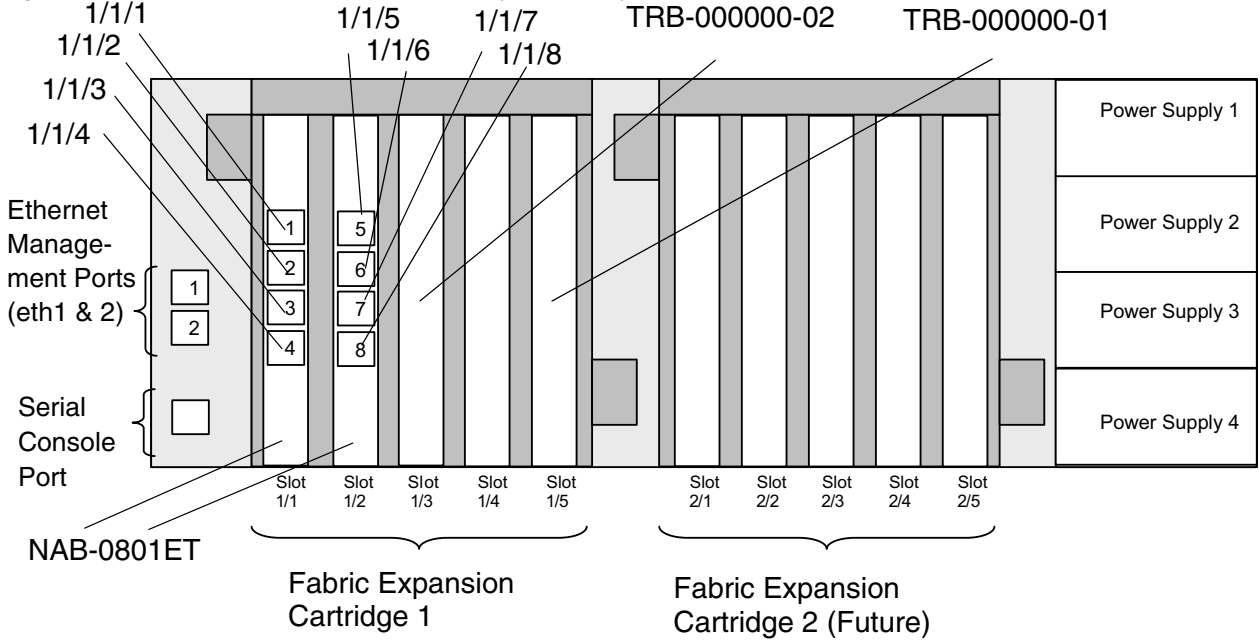


Table 5 Valid Blade Slot Assignments for P-7500 Fabric Expansion Cartridge (FEC)

Blade Type	Valid Slots	Comments
NAB-0210EM	1/1	Use of one Network Acceleration Blade (NAB) is supported, and required.
NAB-0801ET	1/1 and 1/2	Use of one Network Acceleration Blade (NAB) is supported, and required.
TRB-000000-02	1/3	Use of one Topic Routing Blade (TRB) is supported, and required.
TRB-000000-01	1/5	Use of one Topic Routing Blade (TRB) is supported, and required.

Technical Specifications for TIBCO Messaging Appliance P-7500

Table 6 lists the technical specifications for the P-7500 system.

Table 6 Technical Specifications for P-7500 System

Weight	80 lb. (36.3 kg)	
Dimensions	4U rack-mountable chassis	
	Height 7 x Width 17 x Depth 31 inches (177.8 x 431.8 x 787.44 mm)	
Environment Requirements	Operating Temperature	50° to 104° F (10° to 40° C)
	Operating Humidity	5% to 85% (non condensing)
	Storage Temperature	–40° to 150° F (–40° to 65° C), 95% relative humidity
	Storage Humidity	5% to 95% (nonconducting)
Space Requirements	<ul style="list-style-type: none">• 3 feet (91 cm) behind system or rack• no space requirements for sides of units or rack• do not block air vents on front or back of the system• position system with easy access to connections it needs for power, local communications, and remote communications	
Airflow Direction	In through the front and out through the back.	
Power Input Rating	Input rating: 110/220VAC, 8-4A, 47-63 Hz	
	Typical power consumption: 450 W	
Regulatory Compliance	Safety: UL 60950-1; CSA 22.2 No. 60950-1-03 and EN 60950-1; CE Mark	
	EMC: FCC Part 15 Class A; EN55022 Class A; EN55024; EN61000-3-2/3; CE Mark	