



TippingPoint™

Threat Protection System Hardware Specification and Installation Guide

Version 5.0.0

5900-4108
October 2017

Legal and notice information

© Copyright 2017 Trend Micro Incorporated. All rights reserved. TippingPoint, the TippingPoint logo, and Digital Vaccine are trademarks or registered trademarks of Trend Micro Incorporated. TippingPoint Reg. U.S. Pat. & Tm. Off. All other company and/or product names may be trademarks of their respective owners.

Trend Micro Incorporated makes no warranty of any kind with regard to this material, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Trend Micro Incorporated shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.

This document contains proprietary information, which is protected by copyright. No part of this document may be photocopied, reproduced in any form or by any means, or translated into another language without the prior written consent of Trend Micro Incorporated. The information is provided “as is” without warranty of any kind and is subject to change without notice. The only warranties for Trend Micro Incorporated products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. Trend Micro Incorporated shall not be liable for technical or editorial errors or omissions contained herein.

TippingPoint Threat Protection System Hardware Specification and Installation Guide

Contents

- About this guide.....1**
 - Target audience..... 1
 - Related documentation..... 1
 - Conventions..... 1
 - Product support..... 2
- Overview.....3**
 - TPS TX Series devices..... 3
 - TPS 2200T device.....5
 - TPS 440T device.....6
- TPS TX Series product overview..... 8**
 - Device overview.....8
 - Chassis – front panel.....8
 - Chassis – rear panel..... 9
 - Chassis – features..... 10
 - Power button..... 10
 - Fans and power supplies..... 11
 - External SSD..... 11
 - Ports..... 11
 - Chassis LEDs..... 12
 - Model requirements..... 13
 - Power requirements..... 13
 - Cabling requirements..... 13
 - I/O module installation..... 13
 - Before you begin..... 14

ESD requirements.....	14
I/O module options.....	14
Module LEDs.....	16
I/O module replacement.....	17
Supported transceivers and cables for TippingPoint I/O modules.....	18
Technical specifications.....	18
TPS 2200T product overview.....	20
Device overview.....	20
Chassis – front panel.....	20
Chassis – rear panel.....	21
Chassis – features.....	22
Power button.....	22
System status indicator.....	23
Alert indicator.....	23
Fans and power supplies.....	23
External storage card.....	23
Ports.....	23
Model requirements.....	25
Power requirements.....	25
Cabling requirements.....	25
Pluggable transceivers.....	25
Technical specifications.....	26
TPS 440T product overview.....	28
Device overview.....	28
Chassis – front panel.....	28
Chassis – rear panel.....	29
Chassis – features.....	29
Power switch and power indicator.....	29

System status indicator.....	30
Alert indicator.....	30
Fans and power supplies.....	30
External storage card.....	30
Ports.....	30
Model requirements.....	32
Power requirements.....	32
Cabling requirements.....	32
Technical specifications.....	32
Install your TPS device.....	34
Install the chassis.....	34
Determine total rack space.....	34
Attach the device to the rack.....	35
Install the external storage card.....	35
Connect the power supply.....	35
Add the I/O modules – TPS TX Series.....	36
Attach the cables.....	36
Connect the console port.....	37
Connect the management port.....	37
Turn on the device.....	37
Check the LEDs.....	37
Run the setup wizard.....	38
Install your license package.....	38
Attach network connections.....	39
Where to go next.....	39
Connector and cable pinout specifications.....	41

RJ-45 (COM) console.....	41
RJ-45 Ethernet connectors.....	42
Power supplies.....	43
AC power supply – TPS 2200T and TX Series.....	43
Connect the AC power supply.....	44
DC power supply – TPS TX Series.....	44
Connect the DC power supply.....	44
Fans.....	46
Replace the fan – TPS TX Series.....	46
Power cord retention bracket.....	48
Overview.....	48
Install the retention bracket.....	48
Use the power cord retention bracket.....	49
Remove the bracket.....	49
External user disk.....	50
External SSD.....	50
External CFast storage card.....	50
External user disk commands.....	51

About this guide

Welcome to the installation and specification guidelines for your Threat Protection System (TPS) device.

This section covers the following topics:

- *Target audience* on page 1
- *Related documentation* on page 1
- *Conventions* on page 1
- *Product support* on page 2

Target audience

The intended audience includes technicians and maintenance personnel responsible for installing, configuring, and maintaining TippingPoint security systems and associated devices. Users should be familiar with the following concepts or environments:

- Basic networking
- Network security
- Routing

Related documentation

A complete set of documentation for your product is available on the TippingPoint Threat Management Center (TMC) at <https://tmc.tippingpoint.com>. The documentation generally includes installation and user guides, command line interface (CLI) references, safety and compliance information, and release notes.

Conventions

This information uses the following conventions.

Typefaces

The following typographic conventions for structuring information are used.

Convention	Element
Bold font	• Key names • Text typed into a GUI element, such as into a box

Convention	Element
	GUI elements that are clicked or selected, such as menu and list items, buttons, and check boxes. Example: Click OK to accept.
<i>Italics font</i>	Text emphasis, important terms, variables, and publication titles
Monospace font	- File and directory names - System output - Code - Text typed at the command-line
<i>Monospace, italic font</i>	- Code variables - Command-line variables
Monospace, bold font	Emphasis of file and directory names, system output, code, and text typed at the command line

Messages

Messages are special text that is emphasized by font, format, and icons.

 **Warning!** Alerts you to potential danger of bodily harm or other potential harmful consequences.

 **Caution:** Provides information to help minimize risk, for example, when a failure to follow directions could result in damage to equipment or loss of data.

Note: Provides additional information to explain a concept or complete a task.

Important: Provides significant information or specific instructions.

Tip: Provides helpful hints and shortcuts, such as suggestions about how to perform a task more easily or more efficiently.

Product support

Information for you to contact product support is available on the TMC at <https://tmc.tippingpoint.com>.

Overview

The TippingPoint Threat Protection System (TPS) is a high-performance, enterprise-class solution that protects your network by scanning, detecting, and responding to network traffic according to the filters, action sets, and global settings maintained on each device by a client.

The TPS offers higher throughput and improved technology that is optimized for high resiliency, high availability, and network segment protection from both external and internal attacks.

You can install as many TPS security devices as you need to strategically protect your network enterprise zones. A local client on the device monitors and manages activity. Alternatively, you can manage devices by using the Security Management System (SMS) console.

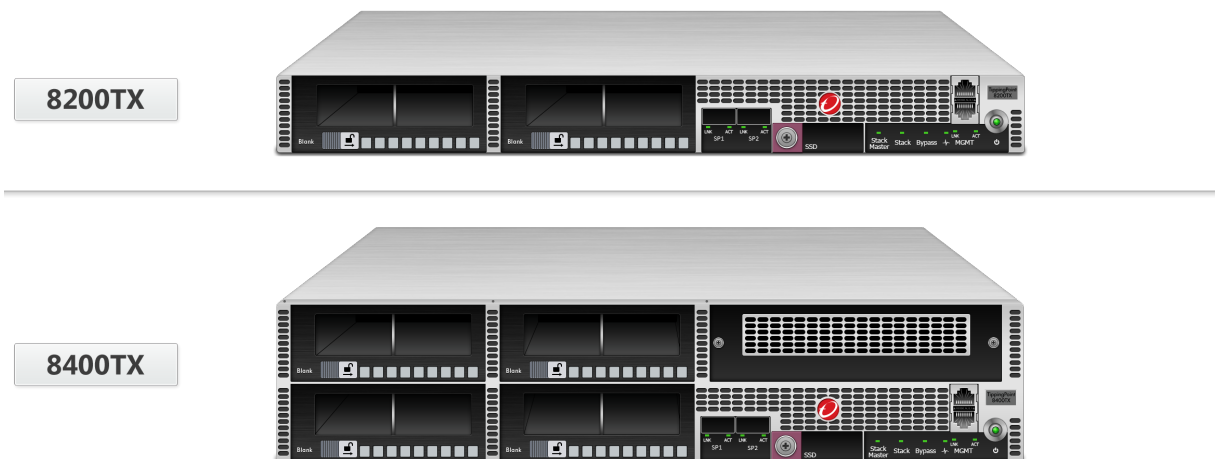
Information about each TPS product is covered in the following sections:

- [TPS TX Series devices](#) on page 3
- [TPS 2200T device](#) on page 5
- [TPS 440T device](#) on page 6

For information about the Virtual Threat Protection System (vTPS) security device, see the product documentation on the TMC at <https://tmc.tippingpoint.com>.

TPS TX Series devices

Figure 1. TPS 8200TX and 8400TX devices – front panel



The TPS 8200TX and 8400TX security devices provide the following hardware features.

Table 1. TPS 8200TX and 8400TX – hardware features

Feature	TX Series devices
Ports	Two fixed QSFP+ special purpose (SP) ports One RJ-45 console port One 1 GbE copper management port
Slots	• Model 8200TX – two I/O slots • Model 8400TX – four I/O slots
Power supply	Two hot-swappable 750W AC power supplies
System memory	128 GB DDR4-2133 DRAM (four 16 GB DDR4-2133 SDRAM per CPU)
External storage	One 32 GB SSD
Replaceable fans	7 hot-swappable fans
High Availability (HA)	Yes

In addition, the device includes:

- IPS inspection throughput: Up to 40 Gbps aggregate across all slots
- IPS + SSL inspection throughput: Up to 2 Gbps SSL inspection across all slots
- Mac-in-Mac support
- Device management through the LSM or centralized management through the SMS

TPS 2200T device

Figure 2. TPS 2200T device – front panel



The TPS 2200T device provides the following hardware features.

Table 2. TPS 2200T – hardware features

Feature	2200T device
Ports	One RJ-45 console port One 1 GbE copper management port
Copper ports	8
1 GbE SFP ports	8
10 GbE SFP+ ports	4
Power supply	2 hot-swappable 750W AC power supplies
System memory	64 GB

Feature	2200T device
External storage	One 8 GB CFast
System fans	3 fans (not replaceable)
High Availability (HA)	Yes
Zero Power High Availability (ZPHA)*	Built-in ZPHA for copper segments External ZPHA port for SFP and SFP+ segments

*For information on installing and operating a ZPHA module, refer to *TippingPoint ZPHA Installation Guide – Modular and Non-Modular* available on the TMC at <https://tmc.tippingpoint.com/>.

In addition, the device includes:

- Built-in intrinsic high-availability features for copper segments, guaranteeing continuity in the event of system failure
- IPS inspection throughput: 1 Gbps (Base) upgradeable to 2 Gbps aggregate across all 10 segments
- IPS + SSL Throughput: 500 Mbps + 500 Mbps (1 Gbps License) or 1.5 Gbps + 500 Mbps (2 Gbps License)
- Encryption for VPN service
- Device management through the LSM or centralized management through the SMS

TPS 440T device

Figure 3. TPS 440T device



The TPS 440T device provides the following hardware features.

Table 3. TPS 440T – hardware features

Feature	440T device
Ports	One RJ-45 console port One 1 GbE copper management port
Copper ports	8
1 GbE SFP ports	None
10 GbE SFP+ ports	None
Power supply	One 350W (built-in) power supply
System memory	16 GB
External storage	One 8 GB CFast
System fans	3 external fans and 2 internal fans (not replaceable)
High Availability (HA)	Yes
Zero Power High Availability (ZPHA)	Built-in ZPHA on the 8 copper ports

In addition, the device includes:

- Built-in intrinsic high-availability features, guaranteeing continuity in the event of system failure
- IPS inspection throughput: 500 Mbps (base) upgradeable to 1 Gbps aggregate across all four segments
- Encryption for VPN service
- Device management through the LSM or centralized management through the SMS

TPS TX Series product overview

This information describes the components, chassis, requirements, and installation specifics of the TPS 8200TX and 8400TX devices. The following topics are discussed:

- [Device overview](#) on page 8
- [Model requirements](#) on page 25
- [I/O module installation](#) on page 13
- [Technical specifications](#) on page 26

For information about installing the device, see [Install your TPS device](#) on page 34. Prior to installation, have the *TPS CLI Reference* available for configuration information.

Device overview

The 8200TX and 8400TX devices are high-range systems that are designed for network environments requiring up to 40 Gbps of inspection throughput with up to 2 Gbps available for Secure Socket Layer (SSL) inspection.

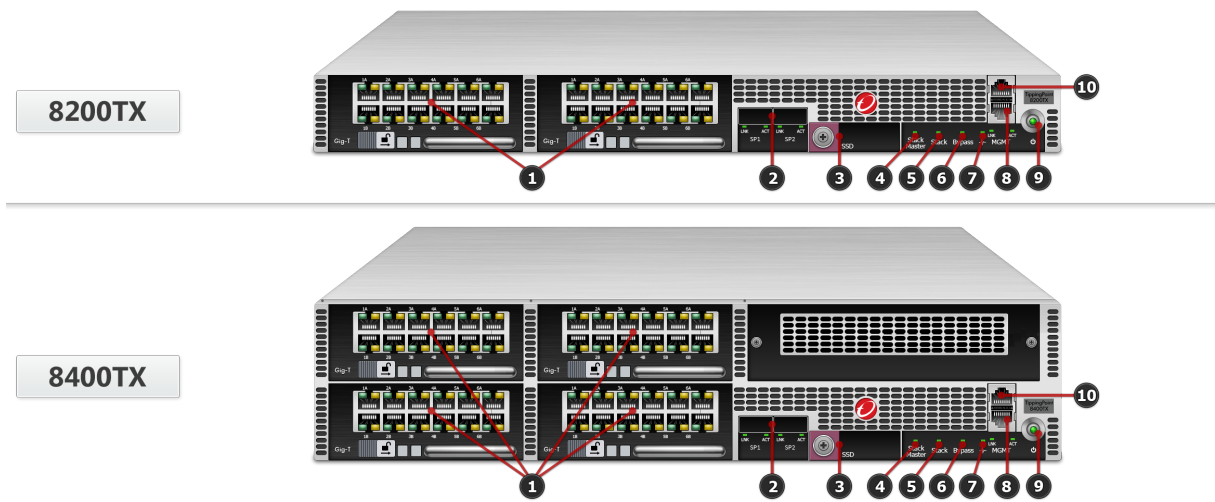
Chassis – front panel

The TPS TX Series devices include a 1U (8200TX) and a 2U (8400TX) form-factor device that are rack-mountable in a 19-inch rack (or 23-inch rack, with appropriate conversion parts available from rack accessory vendors). These appliances support throughput across multiple copper and fiber ports.

The 8200TX and 8400TX security devices provide up to 40 Gbps of inspection throughput.

The following illustration shows a front panel view of the TX Series devices:

Figure 4. TPS 8200TX and 8400TX devices – front panel

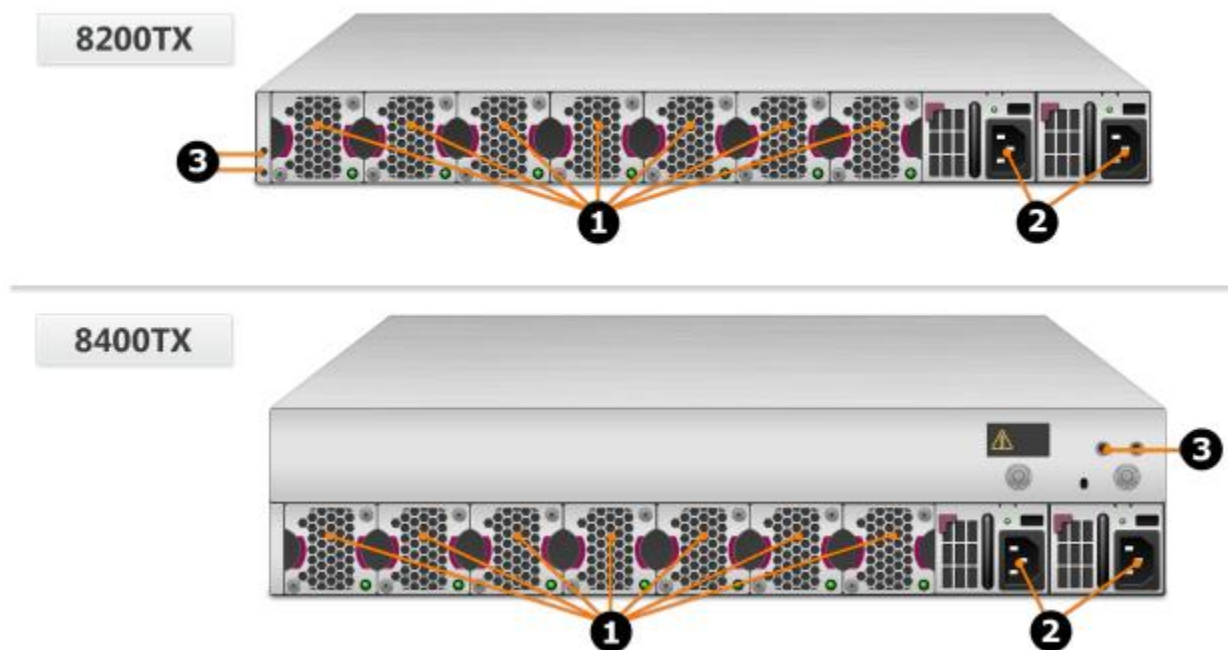


1. I/O modules
2. SP ports
3. External storage 1.8-inch SSD (32 GB)
4. Stack Master LED
5. Stack LED
6. Bypass LED
7. System status LED
8. GbE management port
9. Power button
10. RJ-45 console port

Chassis – rear panel

The following illustration shows the rear-panel view of the TPS 8200TX and 8400TX devices.

Figure 5. TPS TX Series devices – rear panel



1. Fan modules - fans are numbered from left to right (Fan 1 is on the left; Fan 7 is on the right)
2. Power supply modules (Power supply 1 is on the left; Power supply 2 is on the right)
3. DC grounding lug screw holes

Chassis – features

The TPS TX Series chassis features include the following elements:

- [Power button](#) on page 10
- [Chassis LEDs](#) on page 12
- [Fans and power supplies](#) on page 11
- [External storage card](#) on page 23
- [Ports](#) on page 23

Power button

The power button is located on the right side of the console/management ports on the front panel. The power button light indicates the current status of the appliance.

- **No light** — Appliance is powered off.
- **Green** — Appliance is powered on.

Fans and power supplies

The TPS TX Series devices include two power supplies and seven cooling fans. These components are hot-swappable. For more information about these components, see [Power supplies](#) on page 43 and [Fans](#) on page 46.

External SSD

The TPS TX Series device includes an external SSD module that is installed with your product. The SSD stores traffic logs, snapshots, and other system data. The card can be removed and inserted while the device is running; however, to do so, you must issue the appropriate unmounting, mounting, and preparation commands in the device CLI.

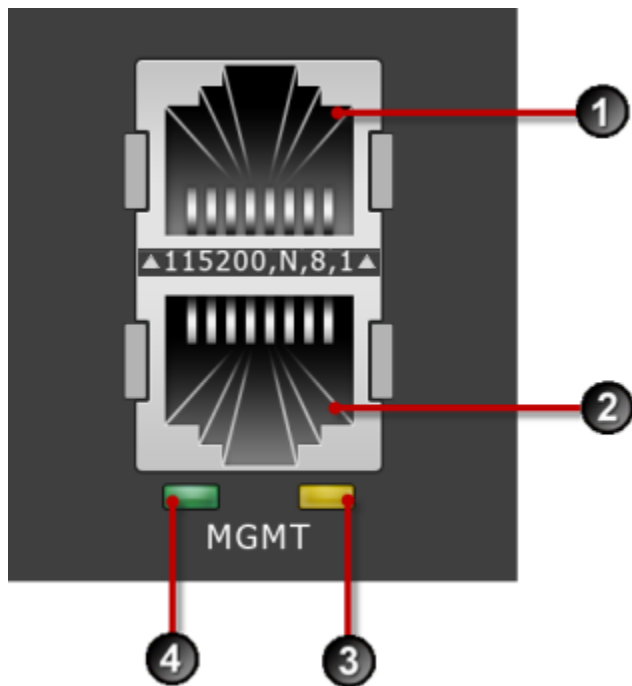
For more information about the procedure, refer to [External user disk](#) on page 50.

Ports

The TPS TX Series devices are equipped with network slots for standard or bypass I/O modules.

In addition, the device provides a console and management port as shown in the following figure:

Figure 6. TPS TX Series devices – management and console ports



1. 1 RJ-45 serial console port
2. 1 GbE copper management port
3. Activity LED

4. Link LED

The management port LEDs indicate link and activity state, as described in the following table.

Table 4. TPS 8200TX and 8400TX – port LED states

LED Type	Color	Description
Link	Green	Link is active at 1000 Mbps.
	Off	Link is inactive, or is active at 10 Mbps or 100 Mbps.
Activity	Blinking amber	Data traffic is passing.
	Off	No traffic is passing.

Chassis LEDs

When you turn on the device, the system completes a series of component checks and then displays LED indicators to show the status of each component:

- Stack Master status
 - Solid green: Indicates that the device is the stack master.
 - Off: Indicates that the device is not the stack master.
- Stack status
 - Solid green: Indicates that the device is RTI and is inspecting network traffic.
 - Off: Indicates that stacking is not enabled on the device.
- Bypass status
 - Solid red: Indicates that the device is in Intrinsic High Availability (Intrinsic HA) Layer-2 Fallback (L2FB) mode.
 - Off: Indicates that the device is not in L2FB mode.
-  System health status
 - Flashing green: Indicates that the system is booting up, and is not yet ready to inspect traffic.
 - Solid green: Indicates that the system is healthy.

- Red: Indicates that the system is experiencing a health alert, such as a fan failure. This state resets to solid green when you view the system log.
- Management port status
 - Link LED: Solid green indicates that the port is linked and ready for data.
 - Activity LED: Flashing amber indicates that the port is passing data.
- Power button status
 - Off: Indicates that the system is off.
 - Solid green: Indicates that the system is on.

Model requirements

The following topics describe specific requirements for the TPS TX Series devices.

- [Power requirements](#) on page 13
- [Cabling requirements](#) on page 25

Power requirements

The 8200TX and 8400TX devices require Alternating Current (AC) or Direct Current (DC) that meets the following requirements:

- AC: Voltage 100V to 240V; 12 to 6A; 47 to 63 Hz
- DC: Voltage -40V to -60V; 24 to 16A

The TX Series devices ship with two AC power supplies. DC power supplies are also available for the device. Consult your TippingPoint account contact for more information if you require a DC power supply.

Cabling requirements

The TPS 8200TX and 8400TX devices ship with the following cables:

- Two AC power cables, one for each hot-swappable power supply
- Null modem cable (USB to RJ-45) for the serial console management port shown in [Figure 6](#) on page 11

I/O module installation

Use these instructions to set up the I/O modules supported in TippingPoint security devices.

This section includes the following topics:

- [Before you begin](#) on page 14
- [ESD requirements](#) on page 14
- [I/O module options](#) on page 14
- [Module LEDs](#) on page 16
- [I/O module replacement](#) on page 17
- [Supported transceivers and cables for TippingPoint I/O modules](#) on page 18

Before you begin

- Review the release notes for your product on the TippingPoint online Threat Management Center (TMC) at <https://tmc.tippingpoint.com> for any late-breaking changes to the installation instructions.
- Read and follow all safety information listed in the *TippingPoint Hardware Safety and Compliance Guide* that shipped with your product.
- Complete the installation of your TippingPoint security device.

ESD requirements

Damage from Electrostatic Discharge (ESD) can occur when electronic components are improperly handled. Improper handling can result in complete or intermittent system failures. Proper ESD protection is required whenever you handle equipment. The following general grounding guidelines apply:

- Always use an ESD wrist strap when adding or removing components from the chassis.
- Avoid touching the circuit boards or connectors on all cards and modules.
- Avoid contact between the printed circuit boards and clothing. The wrist strap only protects components from ESD voltages on the body. ESD voltages on clothing can still cause damage.

Place a removed component board-side-up on an antistatic surface or in a static-shielding container that is also grounded to the same point as the IPS. If you plan to return the component to the factory, immediately place it in a static-shielding container.

I/O module options

TippingPoint devices with module slots support both standard I/O modules and bypass I/O modules. Refer to the following table for fiber and copper components.

Important: Only optical transceiver modules (including SFP, SFP+, and QSFP+) available from TippingPoint have been validated to achieve optimal performance with TippingPoint products. Other vendor devices are not supported. Using other vendor devices could be detrimental to proper operation of the TippingPoint system.

Bypass I/O modules are zero-power high-availability (ZPHA) modules that permit network traffic and services while bypassing the device entirely when the device loses power.

All four standard I/O modules and all five bypass I/O modules are hot-swappable on devices running TippingPoint Operating System (TOS) v3.6.0 or higher.

For more information on the I/O modules, refer to the product hardware documentation for your TippingPoint device.

Table 5. Supported I/O modules and bypass I/O modules

Standard I/O Modules	Bypass I/O Modules
6-Segment Gig-T  Ports: 12 Fixed RJ-45 copper ports Port speed: 10/100/1000 Mbps Part number: TPNN0059	4-Segment Gig-T Bypass Module  Ports: 8 copper ports Port speed: 10/100/1000 Mbps Part number: TPNN0070
6-Segment GbE SFP  Ports: 12 SFP ports Port speed: 1 Gbps Part number: TPNN0068	2-Segment 1G Fiber SR/LR Bypass Module  Ports: 4 Multi-Mode (SR)/Single-Mode (LR) Fiber (LC type) Port speed: 1 Gbps Part number: TPNN0071/TPNN0072
4-Segment 10GbE SFP+	2-Segment 10G Fiber SR/LR Bypass Module

Standard I/O Modules	Bypass I/O Modules
 Ports: 8 Fiber SFP+ ports Port speed: 10 Gbps Part number: TPNN0060	 Ports: 4 Multi-Mode (SR)/Single-Mode (LR) Fiber (LC type) Port speed: 1/10 Gbps Part number: TPNN0073/TPNN0074
1-Segment 40 GbE QSFP+  Ports: 2 Fiber QSFP+ ports Port speed: 40 Gbps Part number: TPNN0069	

Important: Handle all I/O modules with care. The bypass modules contain mechanical switches that are very sensitive to handling when not installed in the system. Network disruption can occur if handled improperly. For more information about deploying bypass modules, refer to the product hardware documentation for your TippingPoint security device.

Module LEDs

The following table describes the states of each LED on the I/O module.

Table 6. I/O module and bypass I/O module LED states

Feature	LED	Color	Description
Fixed RJ45 copper port	Link	Green	Link is active.

Feature	LED	Color	Description
	Activity	Blinking Amber	Data traffic passing.
Optical transceiver port	Link Activity	Green Amber	Link is active. Data traffic passing.
Module health 	Status	Green Blinking Amber Solid Amber	The module is configured, in service, and in good health. The module has been inserted and powered up, but is not yet recognized by the software. The module is experiencing a fault.
Bypass 	Status	Off Green	Module in bypass. Module in normal mode (not in bypass).

I/O module replacement

On a TPS TX Series device, *hot swapping* allows you to add, remove, or replace an I/O module without shutting down the device. When the device is turned on, you can hot swap an I/O module without interruption to the TPS device.

Note: Hot-swapping I/O modules during system initialization is not supported.

When you hot swap an I/O module, keep the following points in mind:

- The module port configuration is always reset.
- The module segment configuration, including link-down synchronization, Intrinsic HA, and inspection bypass, is always preserved.

When the device is turned off, *cold swapping* allows you to add, remove, or replace an I/O module as you would when you hot swap. However, when you cold swap an I/O module, if the replacement module type is the same, the module port configuration is preserved.

When the device is managed by the SMS, a delay of up to 1 minute can occur before the SMS recognizes the changed I/O module.

Note: When you insert a bypass I/O module, the bypass I/O module always starts up in bypass mode. A bypass I/O module remains in bypass mode until you remove it from bypass mode through the CLI, LSM, or SMS. Rebooting the TPS does not change the bypass mode of the bypass I/O module.

Supported transceivers and cables for TippingPoint I/O modules

Table 7. Supported transceivers for I/O modules

I/O module & part number	Transceiver part number	Transceiver name
6-Segment GbE SFP (TPNN0068)	TPNN0054	TippingPoint X126 1G SFP RJ45 Transceiver
	TPNN0055	
	TPNN0056	TippingPoint X126 1G SR Fiber SFP Transceiver TippingPoint X126 1G LR Fiber SFP Transceiver
4-Segment 10 GbE SFP+ (TPNN0060)	TPNN0057	TippingPoint S136 10G SFP+ LC SR Transceiver
	TPNN0058	
	TPNN0054	TippingPoint S136 10G SFP+ LC LR Transceiver TippingPoint X126 1G SFP RJ45 Transceiver
1-Segment 40 GbE QSFP+ (TPNN0069)	TPNN0067	TippingPoint S146 40G QSFP+ SR4 850nm Transceiver

Technical specifications

The TPS TX Series devices have the following specifications.

Table 8. TPS 8200TX and 8400TX – technical specifications

Specification	Description
Dimensions (unpackaged)	8200TX (1U form factor) – 1.73 in x 18.54 in x 24.84 in (44 mm x 428 mm x 631mm) 8400TX (2U form factor) – 3.46in x 18.54 in x 24.84 in (88mm x 428 mm x 631 mm)
Weight	8200TX – 32 lbs (14.5 kg) 8400TX – 50 lbs (22.7kg)
Power Requirements	- AC: Voltage 100 to 240; Current 12 to 6A; Frequency 47 to 63 Hz - DC: Voltage -40 to -60, Current 24 to 16A, SELV The device's maximum power consumption is 750W.
Service Provider operating requirements	Temperature: 32 to 104° F (0 to 40° C) — Operating Temperature: -4 to 158° F (-20 to 70° C) — Storage
	Altitude: No degradation up to 10,000 feet (3048m)
	Humidity: 5% to 95% (non-condensing)
External interfaces	- One 1 GbE copper management port - One RJ-45 console port - Two fixed QSFP+ special purpose (SP) ports - Network slots: 8200TX – 2 slots 8400TX – 4 slots 1 SSD slot

TPS 2200T product overview

This information describes the components, chassis, requirements, and installation specifics of the TippingPoint 2200T device. The following topics are discussed:

- [Device overview](#) on page 20
- [Model requirements](#) on page 25
- [Pluggable transceivers](#) on page 25
- [Technical specifications](#) on page 26

For information about installing the device, see [Install your TPS device](#) on page 34. Prior to installation, have the *TPS CLI Reference* available for configuration information.

Device overview

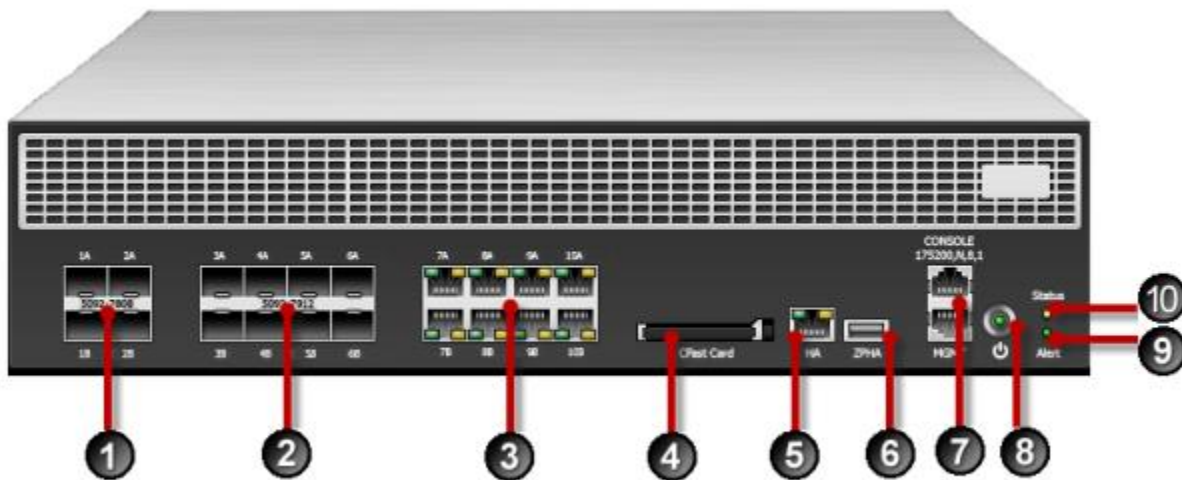
The TPS 2200T device is a mid-range system that has a larger form factor than the TPS 440T device and is designed for network environments requiring up to 2 Gbps of inspection throughput with up to 500 Mbps available for Secure Socket Layer (SSL) inspection. This model provides the same high-level of security protection as the higher-capacity models.

Chassis – front panel

The TPS 2200T device is a 2U form-factor device that is rack-mountable in a 19-inch rack (or 23-inch rack, with appropriate conversion parts available from rack accessory vendors). This device supports throughput across multiple copper and fiber ports.

The following illustration shows a front panel view of the TPS 2200T device:

Figure 7. TPS 2200T device – front panel

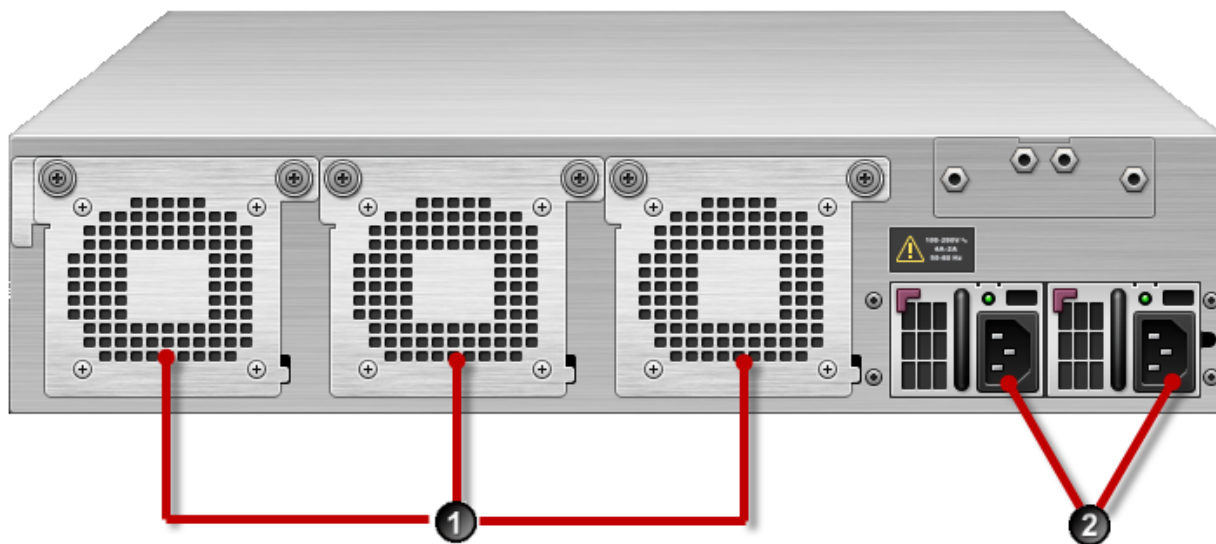


1. 10GbE SFP+ ports
2. 1GbE SFP ports
3. 1GbE copper ports
4. External CFast card
5. Dedicated HA port
6. ZPHA port
7. Console/Management port
8. Power button
9. Alert indicator
10. System status indicator

Chassis – rear panel

The following illustration shows the rear-panel view of the TPS 2200T device.

Figure 8. TPS 2200T – device rear panel



1. Fans (3)
2. Power supplies (2)

Chassis – features

The TPS 2200T chassis features include the following elements:

- [Power button](#) on page 22
- [System status indicator](#) on page 23
- [Alert indicator](#) on page 23
- [Fans and power supplies](#) on page 23
- [External storage card](#) on page 23
- [Ports](#) on page 23

Power button

The power button is located on the right side of the console/management ports on the front panel. The power button light indicates the current status of the appliance.

- **No light** — Appliance is powered off.
- **Green** — Appliance is powered on.

System status indicator

The System Status indicator is located on the right side of the front panel and indicates the current operating status of the appliance.

- **Flashing Green** — Appliance is booting and is not yet ready to inspect traffic.
- **Flashing Green/Yellow** — Appliance is booting and BIOS or software is updating.
- **Solid Green** — Appliance is running in a healthy state.
- **Solid Yellow** — Appliance is running but has a health rating below the acceptable threshold.

Alert indicator

The Alert indicator is located on the right side of the front panel and indicates the current status of the software processes and the hardware.

- **Solid Green** — Both the hardware and the software processes are running normally.
- **Solid Yellow** — System is booting. If the solid yellow indicator remains after startup, a software problem has been detected. Hardware status is undefined.
- **Flashing Yellow** — Hardware problem detected. Software running normally.
- **Off** — Appliance power is off.

Fans and power supplies

The 2200T device includes two hot-swappable power supplies. For more information, see [Power supplies](#) on page 43.

Note: The 2200T device includes three cooling fans. The fans for the 2200T device are redundant but not hot-swappable. If a failure to a fan module occurs, you must replace the entire device.

External storage card

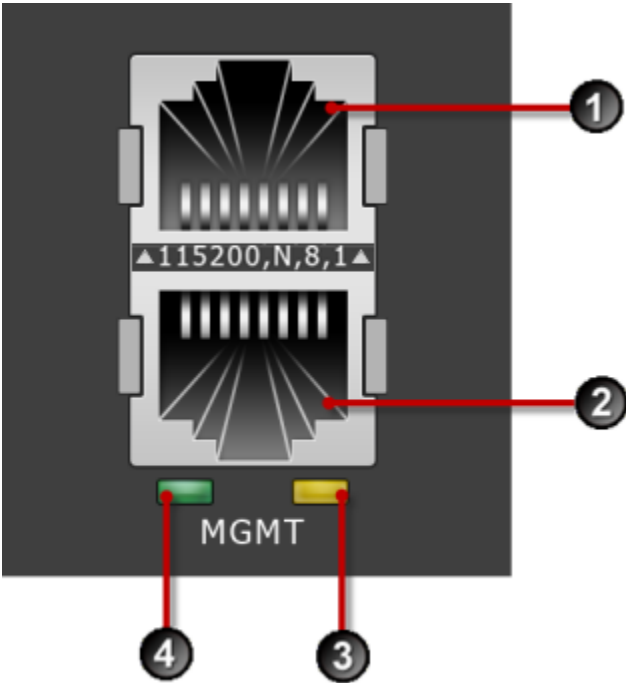
The TPS 2200T device includes a CFast card slot. The external storage card stores traffic logs, snapshots, and other system data. The card can be removed and inserted while the device is running; however, to do so, you must issue the appropriate unmounting, mounting, and preparation commands in the device CLI.

For more information, see [External user disk](#) on page 50 or the *TPS CLI Reference* for command syntax.

Ports

The 2200T device is equipped with eight RJ-45 ports that include integrated bypass support. In addition, the device provides a console and management port as shown in the following figure:

Figure 9. TPS 2200T device – management and console ports



1. 1 RJ-45 serial console port
2. 1 GbE copper management port
3. Activity LED
4. Link LED

The management port LEDs indicate link and activity state, as described in the following table.

Table 9. TPS 2200T – port LED states

LED Type	Color	Description
Link	Green	Link is active at 1000 Mbps.
	Off	Link is inactive, or is active at 10 Mbps or 100 Mbps.
Activity	Blinking amber	Data traffic is passing.
	Off	No traffic is passing.

In addition, the 2200T is equipped with eight 1G SFP ports and 4 10G SFP+ ports. ZPHA bypass support for SFP/SFP+ is provided through an external ZPHA device.

Model requirements

The following topics describe specific requirements for the 2200T device.

- [Power requirements](#) on page 25
- [Cabling requirements](#) on page 25

Power requirements

The TPS 2200T device requires Alternating Current (AC) that meets the following requirements:

- AC: Voltage 100V to 240V; 12 to 6A; 47 to 63 Hz

The TPS 2200T device ships with two AC power supplies.

Cabling requirements

The TPS 2200T device ships with the following cables:

- Two AC power cables, one for each hot-swappable power supply
- Null modem cable (USB to RJ-45) for the serial console management port shown in [Figure 9](#) on page 24

Pluggable transceivers

The 2200T device supports the following SFP and SFP+ pluggable transceivers:

- 1G SFP RJ45 T (Copper SFP)
- 1G SFP LC LX 10km 1310nm XCVR
- 1G SFP LC SX 550m 850nm XCVR
- 10G SFP+ LC SR
- 10G SFP+ LC LR

Note: Only optical transceiver modules (including SFP and SFP+) available from TippingPoint have been validated to achieve optimal performance with TippingPoint products. Other vendor devices are not supported. Using other vendor devices could be detrimental to proper operation of the TippingPoint system.

The following table details the information for SFP and SFP+ transceivers.

Table 10. Fiber input details

Fiber Input	Signal
Left side	Transmit
Right side	Receive

Technical specifications

The TPS 2200T device has the following specifications.

Table 11. TPS 2200T – technical specifications

Specification	Description
Dimensions (unpackaged)	2U form factor – 3.46 in (H) x 16.77 in (W) x 18.80 in (D) (8.80 cm x 42.60 cm x 47.80 cm)
Weight	26.26 lbs (11.91 kg)
Power Requirements	AC: Voltage 100 to 240; Current 12 to 6A; Frequency 47 to 63 Hz The appliance's maximum power consumption is 493W.
Service Provider operating requirements	Temperature: 32 to 104° F (0 to 40° C) — Operating Temperature: -4 to 158° F (-20 to 70° C) — Storage
	Altitude: No degradation up to 10,000 feet (3048m)
	Humidity: 5% to 95% (non-condensing)
External interfaces	• One 1 GbE copper management port • One RJ-45 console port

Specification	Description
	• Eight 1 GbE copper ports • Eight 1 GbE SFP fiber ports • Four 10 GbE SFP+ fiber ports • One HA port • One ZPHA port • One CFast slot

TPS 440T product overview

This information describes the components, chassis, requirements, and installation specifics of the TPS 440T device. The following topics are discussed:

- [Device overview](#) on page 28
- [Model requirements](#) on page 32
- [Technical specifications](#) on page 32

For information about installing the device, see [Install your TPS device](#) on page 34. Prior to installation, have the *TPS CLI Reference* available for configuration information.

Device overview

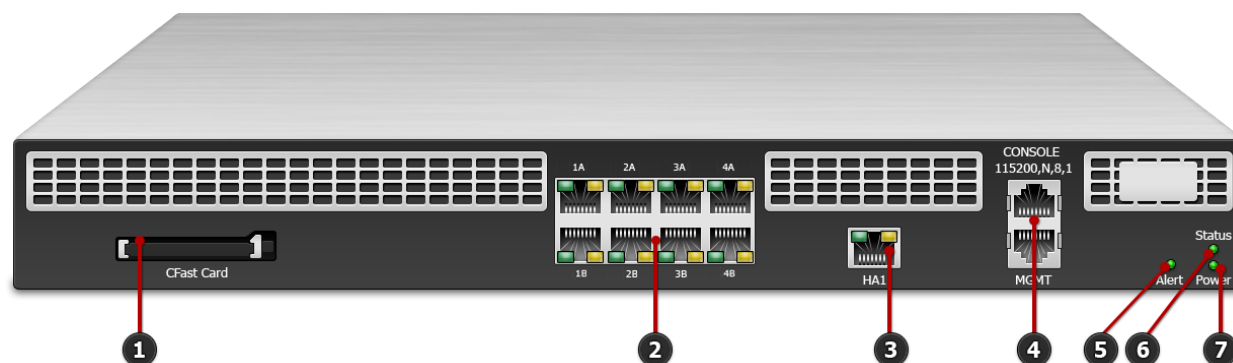
The 440T device is a small form-factor device designed for smaller network environments requiring up to 1 Gbps of inspection throughput. This model provides the same high-level security protection as the higher-capacity models.

Chassis – front panel

The TPS 440T device is a 1U form-factor device that is rack-mountable in a 19-inch rack (or 23-inch rack, with appropriate conversion parts available from rack accessory vendors).

The following image is a front panel view of a TPS 440T device:

Figure 10. TPS 440T device – front panel



1. CFast card
2. 1GB copper ports
3. Dedicated HA port
4. Serial console port/Management port

5. Alert indicator
6. System status indicator
7. Power indicator

Chassis – rear panel

The following illustration shows a rear-panel view of a 440T device.

Figure 11. TPS 440T device – rear back panel



1. Fans (3)
2. AC power supply
3. AC power connector
4. Power switch

Chassis – features

The TPS 440T chassis features include the following elements:

- [Power switch and power indicator](#) on page 29
- [System status indicator](#) on page 30
- [Alert indicator](#) on page 30
- [Fans and power supplies](#) on page 30
- [External storage card](#) on page 30
- [Ports](#) on page 30

Power switch and power indicator

The power switch is located on the right side of the back panel. The power indicator on the front panel indicates the current power status of the device.

- **No light** — Device is powered off.
- **Green** — Device is powered on.

System status indicator

The System Status indicator is located on the right side of the front panel and indicates the current operating status of the device.

- **Flashing Green** — Device is booting and is not yet ready to inspect traffic.
- **Flashing Green/Yellow** — Device is booting and BIOS or software is updating.
- **Solid Green** — Device is running in a healthy state.
- **Solid Yellow** — Device is running but has a health rating below the acceptable threshold.

Alert indicator

The Alert indicator is located on the right side of the front panel and indicates the current status of the software processes and the hardware.

- **Solid Green** — Both the hardware and the software processes are running normally.
- **Solid Yellow** — System is booting. If the solid yellow indicator remains after startup, a software problem has been detected. Hardware status is undefined.
- **Flashing Yellow** — Hardware problem detected. Software running normally.
- **Off** — Device power is off.

Fans and power supplies

The 440T device includes one power supply and five cooling fans (two of them are internal). These components are not customer-replaceable. For more information about these components, see [Power supplies](#) on page 43.

External storage card

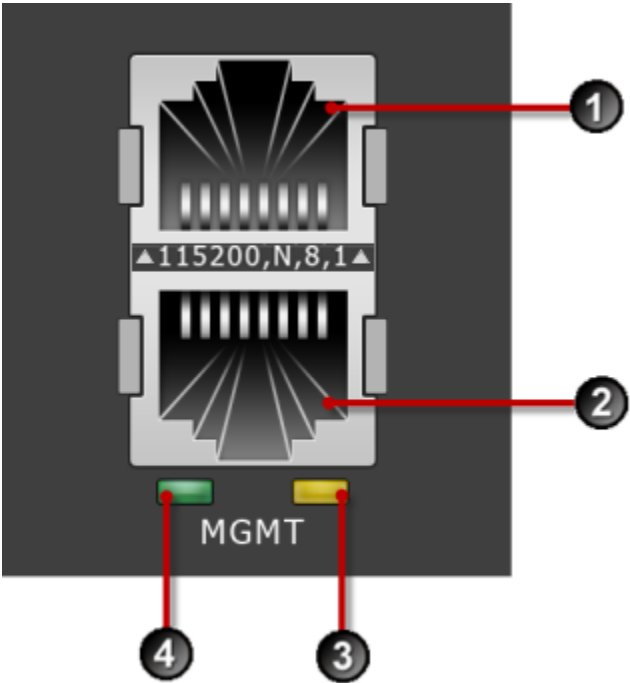
The TPS 440T device includes a CFast card slot. The external storage card stores traffic logs, snapshots, and other system data. The card can be removed and inserted while the device is running; however, to do so, you must issue the appropriate unmounting, mounting, and preparation commands in the device CLI.

For more information about the procedure, refer to [External user disk](#) on page 50.

Ports

The TPS 440T device is equipped with eight copper ports. In addition, the device includes the console and management ports shown in the following figure:

Figure 12. TPS 440T device – management and console ports



1. 1 RJ-45 serial console port
2. 1 GbE copper management port
3. Activity LED
4. Link LED

The management port LEDs indicate link and activity state, as described in the following table.

Table 12. TPS 440T – port LED states

LED Type	Color	Description
Link	Green	Link is active at 1000 Mbps.
	Off	Link is inactive, or is active at 10 Mbps or 100 Mbps.
Activity	Blinking amber	Data traffic is passing.
	Off	No traffic is passing.

Model requirements

The following topics describe the power and cabling requirements for the TPS 440T device.

- [Power requirements](#) on page 32
- [Cabling requirements](#) on page 32

Power requirements

The TPS 440T device requires Alternating Current (AC) that meets the following requirements:

- AC: Voltage 100V to 240V; 4 to 2A; 47 to 63 Hz

The TPS 440T device ships with one AC power supply.

Cabling requirements

The TPS 440T device ships with the following cables:

- One AC power cable
- Null modem cable (USB to RJ-45) for the serial console management port shown in [Figure 12](#) on page 31

Technical specifications

The TPS 440T device has the following specifications.

Table 13. TPS 440T – technical specifications

Specification	Description
Dimensions (unpacked)	1U form factor – 1.73 in (H) x 16.78 in (W) x 17.72 in (D) (4.40 cm x 42.62 cm x 45.00 cm)
Weight	15.28 lbs (6.93 kg)
Power Requirements	AC: Voltage 100 to 240; Current 4 to 2A; Frequency 50 to 60 Hz The device's maximum power consumption is 250W.

Specification	Description
Service Provider operating requirements	Temperature: 32 to 104° F (0 to 40° C) — Operating Temperature: -4 to 158° F (-20 to 70° C) — Storage
	Altitude: No degradation up to 10,000 feet (3048 m)
	Humidity: 5% to 95% (non-condensing)
External interfaces	• One 1 GbE copper management port • One RJ-45 console port • Eight 1 GbE copper ports • One CFast slot

Install your TPS device

After you have completed preparation procedures and unpacked the TPS device, you are ready to install and configure the components. Have the *TPS CLI Reference* available for configuration information reference. After installation of the hardware components, complete the initial setup wizard as part of the installation and configuration procedures.

Note: Before installing your device, review and adhere to all safety guidelines described the *TPS Hardware Safety and Compliance Guide*, which also contains detailed regulatory compliance information and is included with your product shipment.

This information includes the following procedures:

- *Install the chassis* on page 34
- *Connect the power supply* on page 35
- *Attach the cables* on page 36
- *Check the LEDs* on page 37
- *Run the setup wizard* on page 38

Install the chassis

This information provides general guideline information for all TippingPoint devices. For installation guidelines specific to your TPS device, refer to the appropriate *Install your security device* quick start for your model available on the TMC at <https://tmc.tippingpoint.com>.

Before installing your new security device, gather any necessary materials and prepare the network and hardware site. To carefully and correctly install the device, read through all preparation instructions and requirements. This information provides general guideline information for all TippingPoint devices.

To install the device you must do the following:

- *Determine total rack space* on page 34
- *Attach the device to the rack* on page 35
- *Connect the power supply* on page 35

Determine total rack space

Before you install the chassis, determine the total rack space that is required to install your system. The total required rack space increases if you plan to install multiple systems.

The device fits in a 19-inch-wide rack (or a 23-inch-wide rack, with appropriate conversion parts available from rack accessory vendors). For more information about the dimensions of the device, refer to the technical specifications and requirements for your model.

Attach the device to the rack

Unpack the accessory kit and the slide rail assembly kit that shipped with your security appliance and review the installation documentation.

If the rack is partially filled, load the rack from the bottom to the top with the heaviest component at the bottom. During initial installation, make sure to evenly distribute the weight so that the rack is stable.

Important: Always use a four-post mount for four-post racks.

If you plan to expand your system to include additional TippingPoint systems in the future, allow space in the rack for additions. During the initial installation, keep in mind the weight distribution and stability of the rack.

Install the external storage card

For TPS 440T and 2200T security devices, install the CFast card that was packaged with your product into the empty slot on the front panel of the device. This pre-formatted, hot-swappable user disk can store system logs, snapshots, and other system data.

For TPS 8200TX and 8400TX security devices, the external SSD module is installed with the product. If you have a TPS TX Series device, you can skip this step.

Connect the power supply

After you have bolted the device to the rack, attach the power supply AC connections. Do not turn on the device until you have completed all of the remaining installation steps.

The TPS 2200T, 8200TX, and 8400TX security devices require the use of one power cord to turn on the device. Use a second power cord for redundancy. For maximum protection, use different power circuit feeds for each power cord.

Note: The TPS 440T provides a single power supply.

When you install DC power, always install the safety ground cable before connecting the power supply. For DC power connection details, refer to the product hardware documentation.

To connect the power supply

1. Locate the power inlets on the back of the chassis.
2. Plug the female end of a standard power cord into the power inlet and plug the other end of the power cord into an AC outlet, power strip, or UPS.

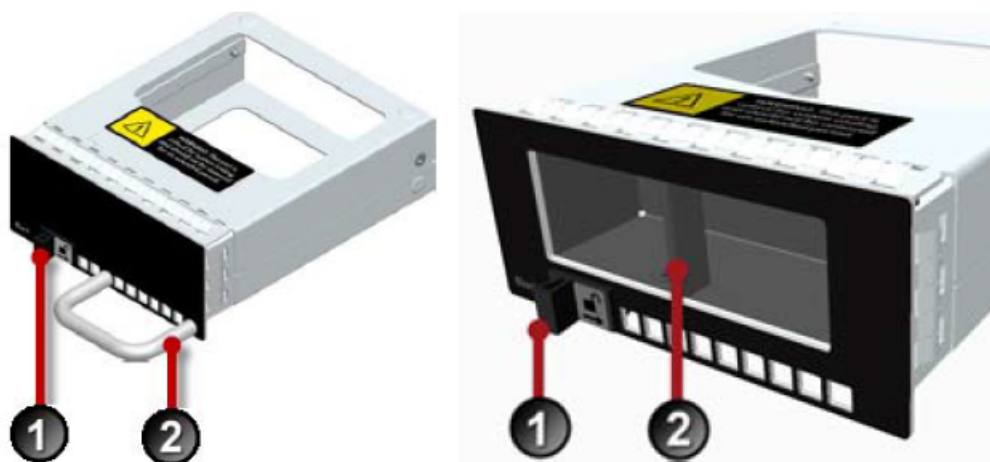
Add the I/O modules – TPS TX Series

TPS TX Series devices come with blank modules inserted into I/O module slots. The TPS 8200TX provides two I/O slots and the TPS 8400TX provides four I/O slots.

⚠ Warning! Do not leave slots empty for an extended period of time. Insertion of a blank module or I/O module ensures that the device is correctly cooled.

For detailed information about I/O module installation, see [I/O module installation](#) on page 13.

Figure 13. Blank modules



1. To remove the blank module, slide the slide latch (1) to the right and pull on the handle (2 on left module) or grab point (2 on right module).

⚠ Caution: Never lift your device using the module handles.

2. To insert an I/O module, slide the module into the empty module slot.

When the module is in the correct position, the slide latch automatically slides into position.

Important: When you insert a bypass I/O module, the bypass I/O module always starts up in bypass mode. A bypass I/O module remains in bypass mode until you remove it from bypass mode through the CLI, LSM, or SMS. Rebooting the TPS does not change the bypass mode of the bypass I/O module. For information about how to disable bypass mode, see your product documentation on the TMC.

Attach the cables

During initial setup, use the management processor connection or the console port to access the setup wizard.

Connect the console port

Describes how to connect the console port.

1. Connect the RJ-45 null modem cable to the console port on the front of the unit.
2. Connect the other end of your cable (standard USB connector) to your computer.

Use the following terminal settings for the console port:

- Baud rate: 115.2 Kbps
- Character size: 8 bits
- Parity: None
- Stop Bits: One
- Flow Control: None

Connect the management port

Describes how to connect the management port.

1. Connect one end of the Category 5 Ethernet cable to the port labeled MGMT located on the front panel.
2. Connect the other end of the Ethernet cable to your network. This enables remote management.

Turn on the device

After you have reviewed all requirements for operating your product, turn on the device:

- To turn on a TPS 440T device, flip the power switch on the back panel of the device.
- To turn on a TPS 2200T, 8200TX, or 8400TX security device, use the power button located on the front panel of the device.

Check the LEDs

When you connect power to the device, the system completes a series of component checks. It then displays LEDs to show the status of each component. For more information, see the LED status for your product:

- TPS TX Series device: [Chassis – features](#) on page 10
- TPS 2200T device: [Chassis – features](#) on page 22
- TPS 440T device: [Chassis – features](#) on page 29

Run the setup wizard

From the console terminal, complete the initial configuration by using the setup wizard. The wizard performs system checks and then prompts you to complete the initial setup.

After you run the setup, you can further configure your system using subsequent setup commands through the device CLI. See the *TPS CLI Reference* for detailed command descriptions.

1. Specify a security level (None, Low, Medium, or High). The security level you select determines your password complexity requirements.
2. Create an administrative account with the **SuperUser** role. The **SuperUser** role gives the account full access to the device. For more information about user accounts, review the documentation for your product on the TMC.

The wizard prompts you to log in with your administrative account so that you can continue initial setup.

3. From the console port terminal, log in with your administrative account.

The wizard prompts you to configure IP address, default gateway, DNS server, and timekeeping options.

Install your license package

Install your license package on the device to provide the following product capabilities:

- Inspection throughput
- Digital Vaccine
- ThreatDV
- SSL inspection

Update your license package to assign a product capability that you have purchased, such as an inspection throughput license, to a particular security device. To review and manage the capabilities in your license package, go to the TippingPoint License Manager on the TMC at <https://tmc.tippingpoint.com>.

Important: Verify your product license provides sufficient inspection throughput. By default, a TPS security device is unlicensed and provides reduced inspection throughput for testing and evaluation purposes only.

Table 14. TPS devices – unlicensed inspection throughput

Security device	Unlicensed inspection throughput
8400TX	1 Gbps

Security device	Unlicensed inspection throughput
8200TX	1 Gpbs
2200T	200 Mbps
440T	100 Mbps

Attach network connections

Describes how to make network connections.

All ports on the TPS device are dynamic and do not require fixed cable assignments. When making your network cable connections, keep track of which ports you select for which purpose.

1. Attach one or more network cables for the internal network. Make note of which front panel ports you use.
2. Attach a network cable for the external (WAN) network. Make note of which front panel port you use.
3. Using the LSM or the command line interface, configure network interface types appropriate to the surrounding network using the ports you selected.

For more information about device network configuration and connections, refer to the *TPS Local Security Manager User Guide* and the *TPS CLI Reference*.

Where to go next

After you attach network connections, network traffic passes through the device using the default filter configuration. The default configuration automatically recognizes and blocks traffic that is known to be malicious at all times, under all conditions, in all network environments.

On a TX Series device, any bypass I/O modules remain in bypass mode until you remove them from bypass mode through the CLI, LSM, or SMS. Rebooting the TPS does not change the bypass mode of the bypass I/O module. For information about how to disable bypass mode, see your product documentation on the TMC.

Note: To complete your installation, see the *Release Notes* for your product on the TMC at <https://tmc.tippingpoint.com>. The *Release Notes* provide the latest post-installation information for your product.

You can perform additional configuration, administrative, and management tasks, by using:

- The LSM or the device command line interface (CLI). The LSM and CLI enable straightforward management of a particular device.

Note: From the CLI, you can repeat the setup wizard by using the `setup` command. When you use the CLI, configure the terminal emulation package to transmit a Ctrl-H character when the Backspace key is pressed.

- The SMS. The TippingPoint SMS provides a scalable, policy-based operational model, and enables straightforward management of large-scale IPS and TPS deployments.

Connector and cable pinout specifications

This information provides connector and pinout information for TPS devices and contains the following topics:

- [RJ-45 \(COM\) console](#) on page 41
- [RJ-45 Ethernet connectors](#) on page 42

RJ-45 (COM) console

Describes the RJ-45 (COM) console specifications.

The following figure displays the RJ-45 connector and the following table shows the RJ-45 console connector pinouts.

Figure 14. RJ-45 connector



Table 15. RJ-45 console connector pinouts

Pin number	Signal name
1	Request to Send (RTS)
2	Data Terminal Ready (DTR)
3	Transmit Data (TxD)
4	Ground (GND)
5	Ground (GND)
6	Receive Data (RxD)
7	Data Set Ready (DSR)

Pin number	Signal name
8	Clear to Send (CTS)

RJ-45 Ethernet connectors

Provides pinout information for when your RJ-45 device is operating in 10Mbps/100Mbps mode.

Table 16. RJ-45 pinout information

Pin number	Signal name
1	Transmit positive (Tx+)
2	Transmit negative (Tx-)
3	Receive positive (Rx+)
4	Ground (GND)
5	Ground (GND)
6	Receive negative (Rx-)
7	Ground (GND)
8	Ground (GND)

Power supplies

This topic provides information for using the power supply modules. The following subjects are discussed.

- [AC power supply – TPS 2200T and TX Series](#) on page 43
- [DC power supply – TPS TX Series](#) on page 44

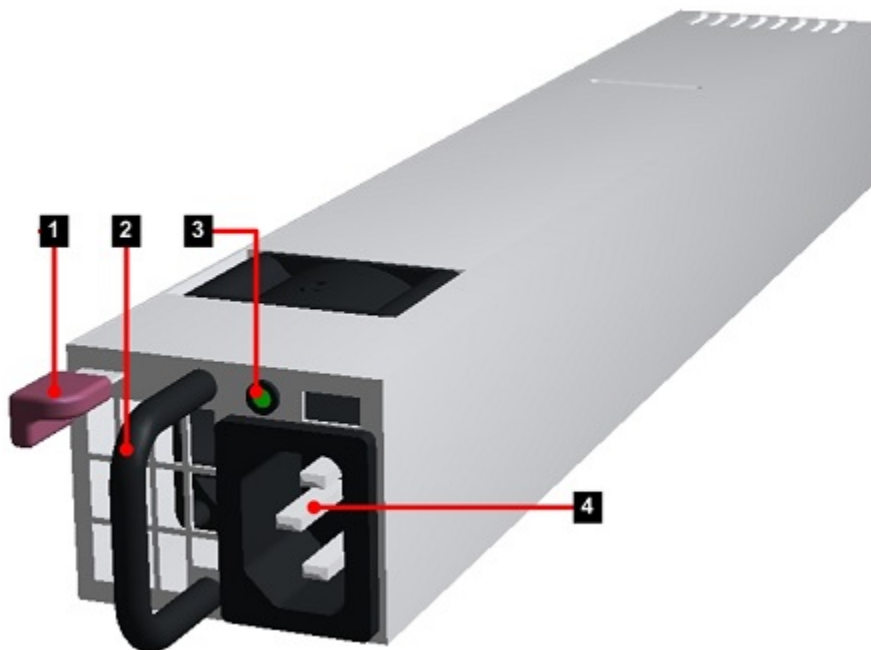
Warning! This product might have more than one power supply source. All power sources must be removed to de-energize the unit.

Note: The TPS 2200T device has hot-swappable power supplies; there are no other serviceable parts inside. There are no hot-swappable or serviceable parts inside the TPS 440T device.

AC power supply – TPS 2200T and TX Series

The TPS 2200T and TX Series devices include two power supply modules. The modules are hot-swappable, redundant, and current-sharing, and the appliance can run with one active module.

Figure 15. 2200T AC power supply



1. Removal Latch
2. Handle
3. Status LED
4. AC male power input

The Status LED is green when the module is powered and running normally.

Connect the AC power supply

Describes how to connect the power supply to your device.

When the AC power supply has been securely placed in the device, use the following procedure to connect power to the AC power supply:

1. Locate the male power input on the back of the chassis.
2. Plug one end of a standard female power plug into the power input.
3. Plug the other end into an AC outlet, power strip, or UPS. For information about the power requirements for your product, see the following sections:
 - TX Series devices – [Technical specifications](#) on page 18
 - 2200T device – [Technical specifications](#) on page 26.
 - 440T device – [Technical specifications](#) on page 32

The TPS device returns to its previous power-on state in the event of a power interruption. If power was on when the interruption occurred, the device automatically powers back on when the power is reconnected; if power was off, the device stays off when the power is reconnected. If necessary, power on the device with the button on the front of the chassis.

DC power supply – TPS TX Series

The TPS TX Series devices are NEBS compliant and can accept a combination of AC and DC power supply units. Consult your TippingPoint account contact for more information on obtaining DC power supplies.

⚠Warning! Do not attempt to install a DC power supply into a 440T device. The 440T device does not contain the grounding capability for safe installation of a DC power supply. Bodily harm and damage to the system could result.

Connect the DC power supply

⚠Warning! When installing the product, always make the ground connection before applying power to the unit. This equipment needs to be grounded to an external ground connection. Use a green and yellow 12 AWG ground wire to connect the host to earth ground during normal use. Disconnect the ground connection only when the unit is completely powered down.

⚠Caution: Do not attach a ground wire to the ground screw on the DC power supply module. Attach the ground wire to the 2200T chassis DC grounding screw holes (0.63-inch hole spacing) with #10 screws. The DC grounding screw holes are located in the rear of the chassis.

The power supply LED is green when the module is powered and running normally.

When the DC power supply has been securely placed in the device, use the following procedure to connect power to the DC power supply.

1. Locate the ground screw on the back of the chassis.

Refer to the following figure for the location.

Figure 16. TPS TX Series devices - DC grounding screw holes



2. Attach a 12 AWG ground wire to the chassis ground strap mounting.
The wire should be crimped with a ring lug.
3. Locate the power input terminal block on the back of the module.
4. Attach the 12 AWG DC power wires to the power input terminal block labeled -48V and RTN.

The power wires should be crimped with lug spades to ensure a secure connection.

5. Connect the other side of the power cable to the SELV power source.

The power source should meet the following requirements:

- Voltage: -40 to -60 V
- 24 to 16 Amps
- SELV

6. Depending on the BIOS settings and the state the device was in when the power was unplugged, the device might or might not turn on automatically when power is reapplied. If necessary, power on the device with the button on the front of the chassis.

Fans

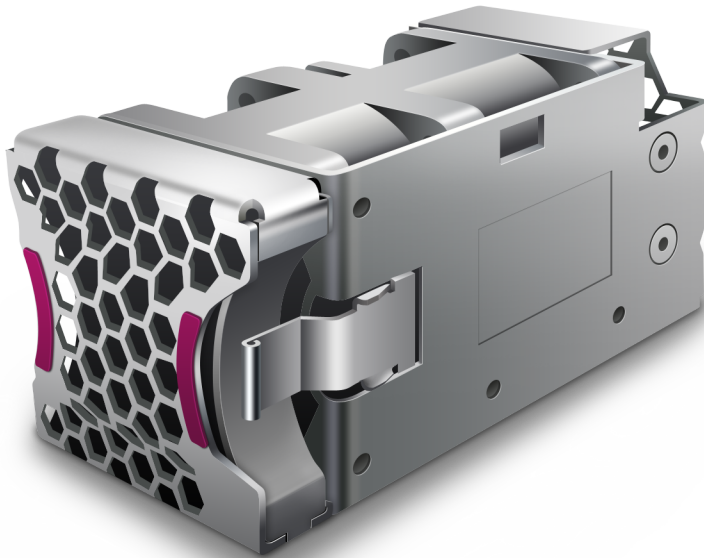
The 440T device includes five cooling fans (two of them are internal). The fans are not redundant or hot-swappable. If a failure to a fan module occurs, you must replace the entire device.

The 2200T device includes three cooling fans. The fans for the 2200T device are redundant but not hot-swappable. If a failure to a fan module occurs, you must replace the entire device.

The TPS TX Series devices include seven cooling fans. The fans for the 8200TX and 8400TX devices are redundant and hot-swappable. An individual fan can be replaced without powering down the device.

The TPS TX Series Spare Fan (IPNN0266) is a replacement unit and can only be used with TPS TX Series devices.

Figure 17. TPS TX Series – fan module



When a fan module fails or its RPM rate falls below a certain threshold, the system generates a warning or critical alarm message in its logs.

You can check fan performance by using:

- The LSM: **System Health > Monitor > Fan Speed**
- The device CLI: `show health fan`

Replace the fan – TPS TX Series

Describes how to replace the fan on the TPS 8200TX and 8400TX security devices.

The fan modules are hot-swappable and can be replaced when the device is operating. After you have identified the faulty fan assembly, follow this procedure to replace the fan:

1. Press the release tab on the right side of the fan module and pull the module from its slot.
2. Set the faulty fan module aside.
3. Remove the new fan module from the packaging.
4. Align the new fan module with its open slot, and then slide the unit in until it is seated in the connector.

After you insert the fan module, the system verifies the fan speed.

Power cord retention bracket

The power cord retention bracket lets you manage the placement of power cords for minimal obtrusiveness.

The following subjects are discussed:

- [Overview](#) on page 48
- [Install the retention bracket](#) on page 48
- [Use the power cord retention bracket](#) on page 49
- [Remove the bracket](#) on page 49

Overview

The power cord retention bracket helps reduce strain on the power cord and power supply outlets.

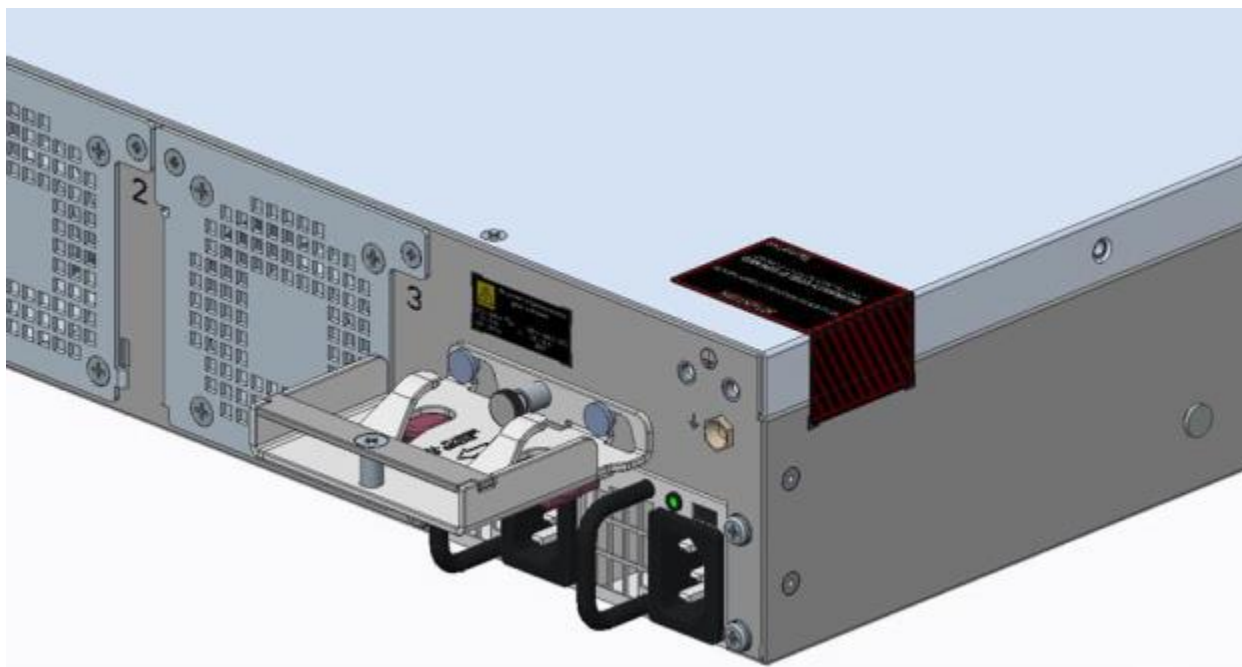
Figure 18. Power Cord retention bracket



Install the retention bracket

The following figure shows a TPS 2200T device with the power cord retention bracket installed:

Figure 19. TPS 2200T device – back panel with retention bracket



To install the retention bracket:

1. Orient the bracket against the back surface of the chassis.
2. Slide the bracket over the two shoulder rivets on the back of the chassis.

The spring-loaded plunger in the center of the bracket slides into place.

Use the power cord retention bracket

Follow this procedure to attach the power cord to the retention bracket:

1. Fold the power cable and slide it into the slot.
2. Push the folded cable into the slot until the cable loop goes past the sheet metal tabs.
3. Secure the folded cable loop under the sheet metal tabs and attach the power cable to the power supply.

Remove the bracket

If you need to remove one of the brackets, pull the spring-loaded plunger in the middle of the bracket and slide the bracket up and off the shoulder rivets.

External user disk

This information describes the external user disk (CFast or SSD) and provides the following topics:

- [External SSD](#) on page 50
- [External CFast storage card](#) on page 50
- [External user disk commands](#) on page 51

External SSD

The TPS TX Series devices come with a pre-formatted external SSD.

Note: Only SSDs available from TippingPoint have been validated to achieve optimal performance with TippingPoint products. Other vendor drives are not supported. Using other vendor drives could be detrimental to proper operation of the TippingPoint system.

The external SSD is a 32 GB drive that stores traffic logs, snapshots, and other system data.

⚠ Caution: Failure to properly remove the TippingPoint SSD can result in disk corruption and a system error.

You can replace the SSD when the system is operating. Before you remove the SSD, use the device CLI to first unmount the drive. For more information, [External user disk commands](#) on page 51.

Important: After you insert a new SSD module into the SSD slot, be sure to mount the user disk. Failure to mount the user disk prevents the device from automatically mounting the disk when the device is rebooted.

External CFast storage card

The TPS 440T and 2200T devices come with a pre-formatted external CFast storage card.

Note: Only CFast cards available from TippingPoint have been validated to achieve optimal performance with TippingPoint products. Other vendor cards are not supported. Using other vendor cards could be detrimental to proper operation of the TippingPoint system.

The external CFast card is an 8 GB card that stores traffic logs, snapshots, and other system data.

⚠ Caution: Failure to properly remove the TippingPoint CFast card can result in disk corruption and a system error.

You can replace the CFast card when the system is operating. Before you remove the card, use the device CLI to first unmount the user disk. For more information, see [External user disk commands](#) on page 51.

Important: After you insert a new card into the CFast slot, be sure to mount the user disk. Failure to mount the user disk prevents the device from automatically mounting the disk when the device is rebooted.

External user disk commands

Lists the commands used to manage the external user disk (CFast or SSD) in the CLI.

Refer to the *TPS CLI Reference* for detailed documentation of these commands.

Table 17. External user disk CLI commands

Command	Description
<code>user-disk format</code>	Formats the external user disk. Any existing data on the external user disk will be erased.
<code>user-disk mount</code>	Manually mounts the external user disk. Important: If you replace the external user disk while the device is turned off, be sure to also restore power to the device so that you can mount the replacement disk. Failure to mount the replacement disk prevents the device from automatically mounting the disk when the device is rebooted.
<code>user-disk unmount</code>	Unmounts the external user disk so that the user can remove it.
<code>user-disk encryption enable</code>	Encrypts the external user disk if the system master key has been set. Changing the encryption status reformats the external user disk and erases all data on the drive. Note: Master key and encryption controls can also be configured using System > Settings > Data Security in the LSM. For more information, refer to the <i>Local Security Manager User Guide</i> .

Command	Description
<code>user-disk encryption disable</code>	Disables encryption of the external user disk if the system master key has been set. Changing the encryption status reformats the card and erases all data on the drive. Note: Master key and encryption controls can also be configured using System > Settings > Data Security in the LSM. For more information, refer to the <i>Local Security Manager User Guide</i>.
<code>show user-disk</code>	Shows properties of the external user disk, including operation status and capacity.
<code>master-key set</code>	Encrypts the external user disk and the system keystore by using the system master key. You are prompted to enter a master key that is between 9 and 32 characters in length, contains a combination of numbers and uppercase and lowercase letters, and that has at least one special character (for example, !@#). Note: Master key and encryption controls can also be configured using System > Settings > Data Security in the LSM. For more information, refer to the <i>Local Security Manager User Guide</i>.