

LANTRONIX®



SM24TBT2DPB

Managed Gigabit Ethernet PoE++ Switch

(24) 10/100/1000Base-T Ports + (2) 100/1000Base-X SFP/RJ-45 Combo Ports

Install Guide

Part Number 33845
Revision B June 2022

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Revision History

Date	Rev.	Comments
4/25/22	A	Initial Lantronix SM24TBT2DPB release at FW VB6.64.0045.
6/16/22	B	Correct model number references on page 19.

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1. Introduction

Product Description

The switch is a high performance Layer 2 managed switch with 52 Gbps switching capacity. It provides (24) 10/100/1000Mbps copper ports with IEEE 802.3bt PoE++ capability and (2) additional 100/1000Mbps dual speed SFP/RJ-45 combo ports. The SM24TBT2DPB complies with the latest IEEE 802.3bt PoE++ standard and supplies up to 90 Watts per port. It can provide full PoE++ output on all 24 ports when equipped with the dual hot-swappable PS-ACDC-1200 power supplies. The SM24TBT2DPB can be powered by low-line and high-line AC or DC power and Digital Electricity™ (DE), making it ideal for use in a wide variety of building applications.

About This Manual

This manual describes the switch and how to install, configure, and troubleshoot the switch, including how to:

- Install, connect, and power the switch
- Check switch status by reading the LED behavior
- Reset the switch or to restore the switch to factory defaults
- Use a Web browser or the CLI to initially configure the switch
- Troubleshoot the switch

Ordering Information

SKU	Description
SM24TBT2DPB	Managed Gigabit Ethernet PoE++ Switch; (24) 10/100/1000Base-T Ports + (2) 100/1000Base-X SFP/RJ-45 Combo Ports. Includes one PS-ACDC-1200 power supply and 19" rack mount brackets. Switch with one power supply; no cables (for Digital Electricity™ applications only).
SM24TBT2DPB-xx	Managed Gigabit Ethernet PoE++ Switch; (24) 10/100/1000Base-T Ports + (2) 100/1000Base-X SFP/RJ-45 Combo Ports. Includes one PS-ACDC-1200 power supply, 19" rack mount brackets, one Saf-D adapter cable, and country-specific power cord(s).
SM24TBT2DPB-2XPS	Managed Gigabit Ethernet PoE++ Switch; (24) 10/100/1000Base-T Ports + (2) 100/1000Base-X SFP/RJ-45 Combo Ports. Includes two PS-ACDC-1200 power supplies, 19" rack mount brackets; no cables (for Digital Electricity™ applications only).
SM24TBT2DPB-2XPS-xx	Managed Gigabit Ethernet PoE++ Switch; (24) 10/100/1000Base-T Ports + (2) 100/1000Base-X SFP/RJ-45 Combo Ports. Includes two PS-ACDC-1200 power supplies, 19" rack mount brackets, two Saf-D adapter cables, and country-specific power cords.
Optional Accessories (sold separately)	
PS-ACDC-1200	Secondary AC & DC Modular Power Supply (1080 Watts PoE Output Max) Warranty: 5 Years (optional – order separately). Additional power supply if customer initially orders switch with one power supply and wants to add the second power supply later; no cables (for Digital Electricity™ applications only).
PS-ACDC-1200-xx	Additional power supply if customer initially orders switch with one power supply and wants to add the second power supply later; one Saf-D adapter cable, and country-specific power cord(s).
SFP+ Modules	See our SFP product page (optional – order separately).

Note: Digital Electricity is a trademark of VoltServer. For more information about Digital Electricity, visit <https://www.voltserver.com/>.

Related Documentation

- SM24TBT2DPB Quick Start Guide, 33844
- SM24TBT2DPB Install Guide, 33845 (this manual)
- SM24TBT2DPA and DPB Web User Guide, 33738
- SM24TBT2DPA and DPB CLI Reference, 33739
- Release Notes (version specific)

Features

- Hot-swappable dual power supply modules
- IPv4/IPv6 dual protocol stack
- Jumbo Frame up to 9K bytes
- Authentication – RADIUS, TACACS+
- Security – SSH v1/SSH v2/SSL
- Port based or tagged (IEEE 802.1Q) VLAN, MAC based, Management VLAN and Private VLAN Edge
- DHCP Relay, DHCP Server
- L2/L3/L4 ACLs, MAC ACL, IP standard/extended ACL
- LLDP (Link Layer Discovery Protocol)
- IEEE 802.3az Energy Efficiency
- IP Source Guard, Port Security

PoE Features

- Compliant with IEEE 802.3bt PoE++
- Compliant with IEEE 802.3at PoE+
- Compliant with IEEE 802.3af PoE
- IEEE 802.1AB LLDP-MED Configuration
- PoE Configuration
- PoE Scheduling
- Auto Power Reset
- DHCP per Port
- Always on PoE
- Ultra-Fast PoE

Software Features

- Management: Web Management, SNMP V1/V2c/V3, Telnet, CLI, REST API
- Port Trunk: Supports IEEE 802.3ad port trunk with link aggregation control protocol (LACP) and static trunk
- IGMP: Supports IGMP Snooping V1/V2/V3, GVRP, IGMP Proxy, and IGMP Querier
- Quality of Service: Supports 8 hardware queues. Strict priority and WRR
- Spanning Tree: Supports IEEE 802.1s MSTP, IEEE 802.1w RSTP and IEEE 802.1D STP Compliant
- Rapid Ring
- VLAN: Port Based VLAN, IEEE 802.1Q tag-based, up to 4k VLAN entries, QinQ, MAC-based VLAN, Private VLAN, Voice VLANs and Management VLAN
- Firmware Update, configuration backup/restore via TFTP and HTTP

Device Management System (DMS) Features

- Graphical Monitoring – Topology view, Floor view, Map view
- Traffic Monitoring – Shows a chart of network performance the devices – all the ports or a specific port
- Troubleshooting – Network diagnostic, protection mechanism, performance and link management
- Firmware Upgrades, Find Switch, Notifications, and Monitoring/Polling via DMS

Specifications

Standards	IEEE 802.3, IEEE 802.3u, IEEE 802.3z, IEEE 802.3ae, IEEE 802.3x, IEEE 802.3ad, IEEE 802.1D, IEEE 802.1w, IEEE 802.1s, IEEE 802.1Q, IEEE 802.1p, IEEE 802.1ad, IEEE 802.1AB, IEEE 802.3af, IEEE 802.3at, IEEE 802.3bt, IEEE 802.3az
Connectors	(1) RJ console port; (24) 10/100/1000 RJ-45 ports; (2) 100/1000 SFP/RJ-45 combo ports
Protocols	CSMA/CD
Technology	Store-and-Forward switching architecture
MAC Address	8K MAC address table
Backplane	52 Gbps
Dimensions	Width: 17.4" [442 mm] x Depth: 11.8" [300 mm] x Height: 1.73" [44 mm]
Power Input	Dual Hot-Swappable Power Supplies; Power Redundancy, Failover: PS-ACDC-1200 AC low-line: 100 - 120VAC AC high line: 200 - 277VAC HVDC low-line : 194 - 254VDC HVDC high-line: 306 - 334VDC
Power Consumption	Maximum Power Consumption without PoE: 79 Watts with dual AC power modules 52 Watts with single AC power module
Power over Ethernet	Max 90 Watts output per port: AC low-line: 900W (single PS), 1,800W (dual PS) AC high-line: 1,080W (single PS), 2,160W (dual PS) HVDC low-line: 900W (single PS), 1,800W (dual PS) HVDC high-line: 1,080W (single PS), 2,160W (dual PS)
Environment	Operating Temp: 0°C to +40°C (32 to 104°F). Storage Temp: -20 to +40°C (-4 to +158°F) Humidity: 10% to 90% (non-condensing)
Weight	SM24TBT2DPB (single power supply) = 11.3 lbs [5.12 kg] SM24TBT2DPB-2XPS (dual power supplies) = 13.3 lbs [6.03 kg]
Certifications	FCC Class A, CE, UL62368-1
Warranty	Lifetime (switch); 5 Years (power supply)

MTBF

SM24TBT2DPB: Relx Software Standard Reliability Prediction Report; GB, GC – Ground Benign, Controlled:

Configuration	Temperature	MTBF
SM24TBT2DPB with 2 PSU	25.00°C	168,959 Hrs.
SM24TBT2DPB with 2 PSU	40.00°C	98,720 Hrs.
SM24TBT2DPB	25.00°C	204,204 Hrs.
SM24TBT2DPB	40.00°C	116,208 Hrs.

Software Feature Descriptions

Layer 2 Switching	
Spanning Tree Protocol (STP)	<ul style="list-style-type: none"> ● Standard Spanning Tree 802.1d ● Rapid Spanning Tree (RSTP) 802.1w ● Multiple Spanning Tree (MSTP) 802.1s
Trunking	Link Aggregation Control Protocol (LACP) IEEE 802.3ad <ul style="list-style-type: none"> ● Up to 13 groups ● Up to 16 ports per group
VLAN	Supports up to 4K VLANs simultaneously (out of 4096 VLAN IDs) <ul style="list-style-type: none"> ● Port-based VLAN ● 802.1Q tag-based VLAN ● MAC-based VLAN ● Management VLAN ● Private VLAN Edge (PVE) ● Q-in-Q (double tag) VLAN ● Voice VLAN ● GARP VLAN Registration Protocol (GVRP)
DHCP Relay	<ul style="list-style-type: none"> ● Relay of DHCP traffic to DHCP server in different VLAN. ● Works with DHCP Option 82
IGMP v1/v2/v3 Snooping	IGMP limits bandwidth-intensive multicast traffic to only the requesters. Supports 1024 multicast groups.
IGMP Querier	IGMP querier is used to support a Layer 2 multicast domain of snooping switches in the absence of a multicast router.
IGMP Proxy	IGMP snooping with proxy reporting or report suppression actively filters IGMP packets to reduce load on the multicast router.
MLD v1/v2 Snooping	Delivers IPv6 multicast packets only to the required receivers.
Device Management System (DMS)	
Graphical Monitoring	<ul style="list-style-type: none"> ● Topology View provides end-to-end visibility of attached PDs with remote access. ● Floor View allows the designer to import existing JPEGs or PNGs of the floor and site drawings into DMS ● Google Maps™ View lets you drag and drop PDs and be visible by State, City, and Street Address
Find my Switch	Locate your switch quickly and manage directly.
Traffic Monitoring	Displays a visual chart of network traffic of all devices to let you monitor every port at any time from a switch
Troubleshooting	Network diagnostic, protection mechanism, performance and link management

Layer 3 Switching	
IPv4 Static Routing	IPv4 Unicast Static routing
IPv6 Static Routing	IPv6 Unicast Static routing
Security	
Secure Shell (SSH)	SSH secures Telnet traffic in or out of the switch; SSH v1 and v2 are supported
Secure Sockets Layer (SSL)	SSL encrypts the HTTP traffic, allowing advanced secure access to the browser-based management GUI in the switch.
IEEE 802.1X	<ul style="list-style-type: none"> • IEEE802.1X: RADIUS authentication, authorization and accounting, MD5 hash, guest VLAN, single/multiple host mode and single/multiple sessions • Supports IGMP-RADIUS based 802.1X • Dynamic VLAN assignment
Layer 2 Isolation Private VLAN Edge	PVE (also known as protected ports) provides L2 isolation between clients in the same VLAN. Supports multiple uplinks
Port Security	Locks MAC addresses to ports and limits the number of learned MAC address.
IP Source Guard	Prevents illegal IP address from accessing a specific switch port.
RADIUS/ TACACS+	Supports RADIUS and TACACS+ authentication; the switch acts as a client.
Storm Control	Prevents traffic on a LAN from being disrupted by a broadcast, multicast, or unicast storm on a port.
DHCP Snooping	Acts as a firewall between untrusted hosts and trusted DHCP servers
ACLs	Supports up to 256 entries. Drop or rate limitation based on: <ul style="list-style-type: none"> • Source and destination MAC, VLAN ID or IP address, protocol, port • Differentiated Services Code Point (DSCP) / IP precedence • TCP/ UDP source and destination ports • 802.1p priority • Ethernet type • Internet Control Message Protocol (ICMP) packets • TCP flag
Quality of Service (QoS)	
Hardware Queue	Supports 8 hardware queues
Scheduling	<ul style="list-style-type: none"> • Strict priority and weighted round-robin (WRR) • Queue assignment based on DSCP and class of service
Classification	<ul style="list-style-type: none"> • Port based • 802.1p VLAN priority based • IPv4/IPv6 precedence / DSCP based • Differentiated Services (DiffServ) • Classification and re-marking ACLs
Rate Limiting	<ul style="list-style-type: none"> • Ingress policer • Egress shaping and rate control • Per port

Management	
DHCP Server	Supports DHCP server to assign IP to DHCP clients
DHCP per Port	You can assign an IP address based on the switch port the device is connected to. This will speed up installations of IP cameras; cameras can be configured after they are on the network. The per-port assignment allows you to know which IP was assigned to which camera.
Link-Local Address binding interface	Configure Link-Local IP address to a different VLAN interface. The first IP interface entry (169.254.xx.xx) is for the default value (VLAN 1). A link-local address is a unicast address having link-only scope that can be used to reach neighbors. All interfaces on routers must have a link-local address. Also, ADDRCONF requires that interfaces on hosts have a link-local address.
Event Notifications	<ul style="list-style-type: none"> Event Notification via Syslog and/or SNMP Traps Event Notification with 8 Severity levels
Remote Monitoring (RMON)	Embedded RMON agent supports RMON groups 1,2,3,9 (history, statistics, alarms, and events) for enhanced traffic management, monitoring and analysis
Port Mirroring	Traffic on a port can be mirrored to another port for analysis with a network analyzer or RMON probe. Up to $n-1$ (where n is the max number of Switch Ports) ports can be mirrored to single destination port. A single session is supported.
UpnP	Universal Plug and Play (UPnP) is a network protocol that allows compliant devices to automatically set port forwarding rules for themselves.
s-Flow	The industry standard for monitoring high speed switched networks. It gives complete visibility into the use of networks enabling performance optimization, accounting/billing for usage, and defense against security threats
IEEE 802.1ab (LLDP)	<ul style="list-style-type: none"> Used by network devices for advertising their identities, capabilities, and neighbors on an IEEE 802ab local area network Support LLDP-MED extensions
Web GUI Interface	Built-in switch configuration utility for browser-based device configuration
CLI	For configuring / managing the switch in Command Line Interface modes
Dual Image	Independent primary and secondary images for backup while upgrading
SNMP	SNMP version 1, 2c and 3 with support for traps, and SNMP version 3 user-based security model (USM)
Firmware Upgrade	<ul style="list-style-type: none"> Web browser upgrade (HTTP/ HTTPS) and TFTP Upgrade via the console port
NTP	Network Time Protocol (NTP) is a networking protocol for clock synchronization between computer systems over packet-switched
Restful API	Allows switch to be monitored and managed through Cloud Management Systems or integrated with Network Management Systems and Video Management Systems.
Other Management	<ul style="list-style-type: none"> HTTP/HTTPS; SSH DHCP Client/ DHCPv6 Client Cable Diagnostics Ping Syslog Telnet Client IPv6 Management

Power over Ethernet (PoE)	
Port Configuration	Supports per-port PoE configuration function
PoE Scheduling	Supports per port PoE scheduling to turn on/off the PoE devices (PDs);
Auto Power Reset	Checks the link status of PDs and reboots PDs if there are no responses. Automatically monitors and reboots PDs when no response to ICMP is received.
Power Delay	The switch provides power to the PDs based on configurable delay time when PoE switch boots up, to protect switch from misuse of the PDs
Always on PoE	Lets you restart device, upload software, or swap active and alternate (backup) firmware images while retaining PoE power to PDs. Note: It will take 75 – 80 seconds to have PoE++ power on the ports to power PDs again if the switch makes a cold restart. “Always on PoE” has no effect on this time. Allows warm reboot of the switch without affecting the PoE output to the attached PDs.
Ultra-fast PoE	Improves PoE startup time. Ultra-fast PoE enables PoE output to attached PDs within 5 seconds after a cold start.
IEEE 802.3bt/at/af compliant	Compliance with latest PoE standard allows the switch to provide up to 90W per port.
Supports full 90 Watts per port	on all 24 ports simultaneously (with secondary power supply installed). This enables higher power PoE applications such as LED lighting or digital signage on all ports
Hot-swappable dual power modules	Allows for scaling of PoE power depending on needs or provides redundancy to eliminate system downtime.
Powering options	Accommodates low-line and high-line AC or DC power and Digital Electricity™, making it ideal for use in a wide variety of building applications. Note: Digital Electricity is a trademark of VoltServer. For more information about Digital Electricity, visit https://www.voltserver.com/ .
Saf-D power connector	Provides increased safety features for connecting higher voltage DC or hybrid AC/DC systems.

Applications

- LED Lighting, supplying power and connectivity to lighting and other building IoT devices.
- IP Surveillance, supplying power and data to PTZ IP cameras, thermal cameras.
- Supplying power and data to thin clients, POS system, digital signage.



PoE Lighting



Smart Building



Security & Surveillance



POS Systems



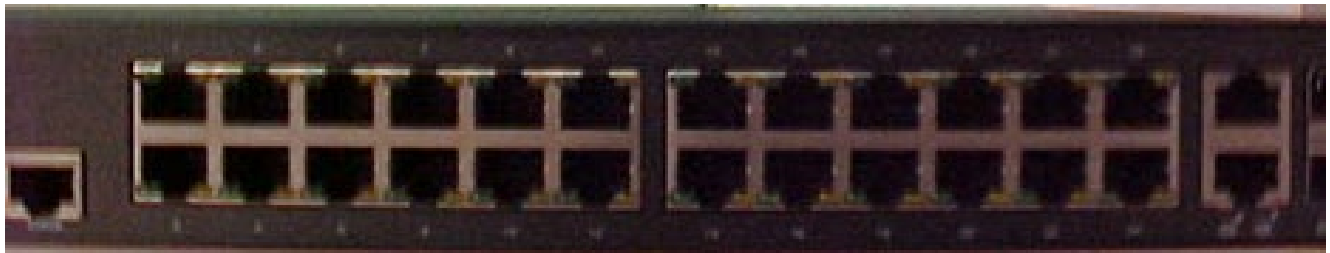
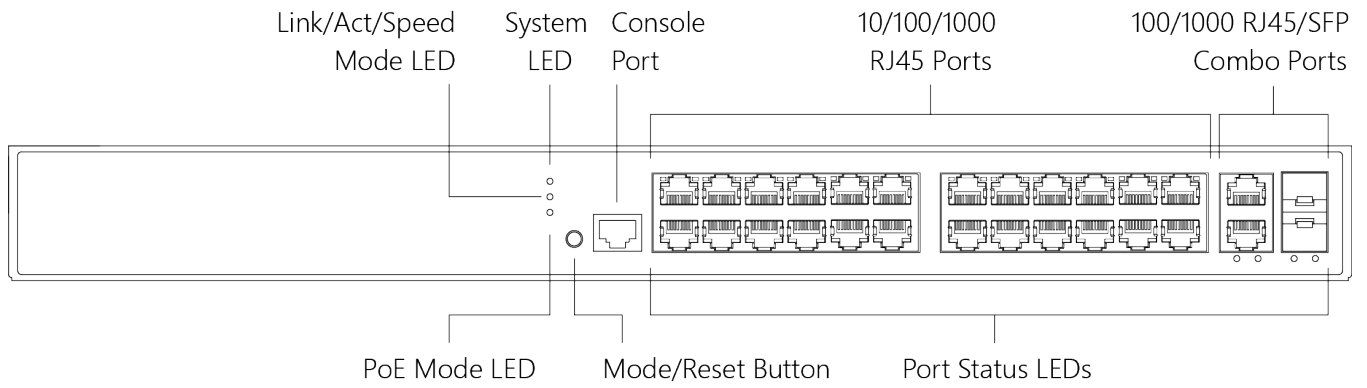
Digital Signage



Thin Clients

Front Panel

The SM24TBT2DPB front panel LEDs, ports and buttons are shown and described below.



LED Descriptions

The LEDs on the front panel provide switch status checking and monitoring. The four types of LEDs are described below:

SYS (System) LED: indicates if the switch is powered up correctly or indicates if there is a system alarm triggered for troubleshooting.

LED	Color	State	Description
System	Green	On	The switch is powered ON correctly.
		Off	The switch is not receiving power.
	Red	On	An abnormal state, such as exceeding operating temperature range, has been detected in the switch.

Mode LEDs: indicate the mode of all RJ45/SFP ports on the switch. You can press the **Mode/Reset** button sequentially to switch between the two different modes (Link/Activity/Speed mode and PoE mode).

LED	Color	State	Description
Link/Act/Speed	Green	On	The Port Status LEDs display link status, network activity and speed of each port.
PoE	Green	On	The RJ45 Port Status LEDs display PoE powering status of each port.

Power Supply LEDs: The LEDs on the Power Supply indicate power status for each Power Supply.

LED	Color	State	Description
AC	Green	On	AC Input is ready.
	Red	On	AC Input has failed.
	--	Off	AC Input is off.
DC	Green	On	DC output is ready.
	Red	On	DC output has failed.
	--	Off	DC output is off.

Port Status LEDs: indicate the current status of each RJ45 and SFP port. You can check these LEDs to understand the port status in different modes, after changing the mode by pressing the **Mode/Reset** button.

Press the **Mode/Reset** button for less than 2 seconds to change LED modes (Link/Act/Speed Mode or PoE Mode); you can then check the port status by reading the LED behaviors per the table below.

Table 3: Port Status LEDs

When Link/Act/Speed Mode LED Lit			
LED	Color	State	Description
RJ45 Ports	Green	On	The port is enabled and established a link to connected device, and the connection speed is 1000Mbps.
	Green	Blinking	The port is transmitting/receiving packets, and the connection speed is 1000Mbps.
	Amber	On	The port is enabled and established a link to connected device, and the connection speed is 10/100Mbps.
	Amber	Blinking	The port is transmitting/receiving packets, and the connection speed is 10/100Mbps.
	--	Off	The port has no active network cable connected, or it has not established a link to connected device. Otherwise, the port may have been disabled through the switch user interface.
SFP Ports	Green	On	The port is enabled and has established a link to connected device, and the connection speed is 1000Mbps.
	Green	Blinking	The port is transmitting/receiving packets, and the connection speed is 1000Mbps.
	Amber	On	The port is enabled and has established a link to connected device, and the connection speed is 100Mbps.
	Amber	Blinking	The port is transmitting/receiving packets, and the connection speed is 100Mbps.
	--	Off	The port has no active network cable connected, or it has not established a link to connected device. Otherwise, the port may have been disabled via the switch UI.
When PoE Mode LED Lit			
LED	Color	State	Description
RJ45 Ports	Green	On	The port is enabled and supplying power to connected device.
	Amber	On	An abnormal state, such as overload status, has been detected in the switch.
	--	Off	The port has no active network cable connected, or it is not connected to a PoE PD device. Otherwise, the port may have been disabled via the switch UI.

Mode/Reset Button

Pressing the front panel **Mode/Reset** button for a period of time lets you perform these tasks:

- **Change Port Status LED Mode:** to read the port status correctly in the two different modes (Link/Act/Speed mode or PoE mode).
- **Reset the Switch:** to reboot and get the switch back to the previous configuration settings saved. Note that there is also an *Always-On PoE (soft reboot)* feature which allows the switch to reboot without affecting PoE port power via the Web UI or CLI.
- **Restore the Switch to Factory Defaults:** to restore the switch to its original factory default settings.



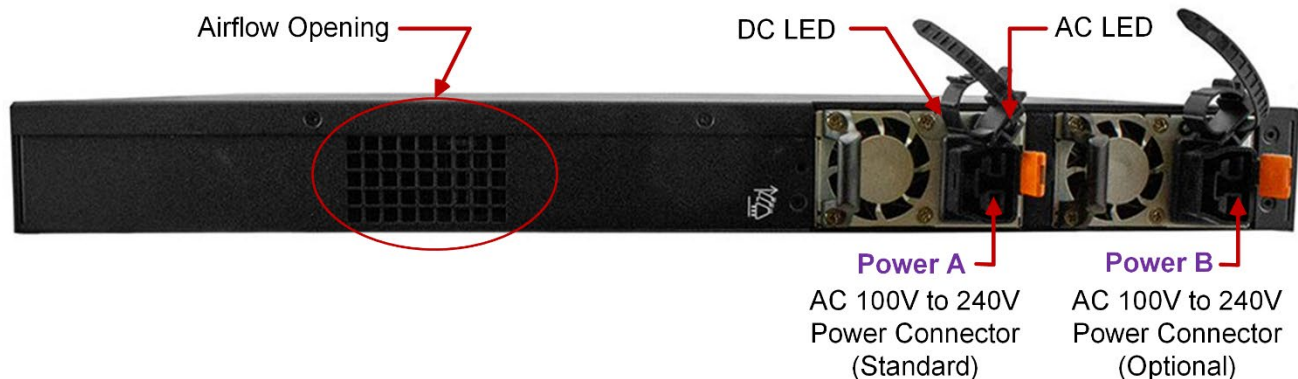
Note: Use the table below to determine which task is being performed by reading the LED behaviors while pressing and holding the Mode/Reset button. When the LED behavior displays correctly, release the button.

Table 4: Mode/Reset Button Descriptions

Task to Perform	Press Button for	SYS LED Behavior	Port Status LED Behavior
Change LED Mode	0 ~ 2 seconds	ON Green	LED status will change based on the mode selected.
Reset the Switch	2 ~ 7 seconds	Blinking Green	ALL LEDs Off.
Restore to Defaults	7 ~ 12 seconds	Blinking Green	ALL LEDs stay On.

Back Panel

The back panel provides two power supply slots and an airflow opening. **Caution:** Be sure to leave adequate room for the airflow openings on both side panels and on the back panel.



2. Installation

This chapter provides a high-level procedure for installing the SM24TBT2DPB followed by more detailed information about the connections and power supplies.

Safety Precautions

Please follow the safety precautions described below when installing and operating the switch.

Cautions and Warnings

Definitions

Cautions indicate that there is the possibility of poor equipment performance or potential damage to the equipment. Warnings indicate that there is the possibility of injury to person.

Cautions and Warnings appear here and may appear throughout this manual where appropriate. Failure to read and understand the information identified by this symbol could result in poor equipment performance, damage to the equipment, or injury to persons.

Caution: EQUIPMENT IS FOR INDOOR USE ONLY!

Caution: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Caution : While installing or servicing the power supply, wear a grounding device and observe all electrostatic discharge precautions. Failure to observe this caution could result in damage to, or failure of the power supply.

Warnings

Warning: Do not connect the power supply to an external power source before installing it into the chassis. Failure to observe this warning could result in an electrical shock, even death.

WARNING: The power supply has a provision for grounding. Equipment grounding is vital to ensure safe operation. The installer must ensure that the power supply is properly grounded during and after installation. Failure to observe this warning could result in an electric shock, even death.

WARNING: A readily accessible, suitable National Electrical Code (NEC) or local electrical code approved disconnect device and branch-circuit protector must be part of the building's installed wiring to accommodate permanently connected equipment. Failure to observe this warning could result in an electric shock, even death.

WARNING: Turn the external power source OFF and ensure that the power supply is disconnected from the external power source before performing any maintenance. Failure to observe this warning could result in an electrical shock, even death.

WARNING: Ensure that the disconnect device for the external power source is OPEN (turned OFF) before disconnecting or connecting the power leads to the power supply. Failure to observe this warning could result in an electric shock, even death.

See Electrical Safety Warnings below for Electrical Safety Warnings translated into multiple languages.

See the ANSI/NECA/BICSI 568-2006 Standard for Installing Commercial Building Telecommunications Cabling.

Ethernet and PoE Intra-Building Cabling Warning

Warning: Ethernet cables are intended for intrabuilding use only. Connecting your Lantronix switch directly to Ethernet cables that run outside the building in which the switch is housed will void the user's warranty and could create a fire or shock hazard.

High Risk Activities Disclaimer

Components, units, or third-party products used in the product described herein are NOT fault-tolerant and are NOT designed, manufactured, or intended for use as on-line control equipment in the following hazardous environments requiring fail-safe controls: the operation of Nuclear Facilities, Aircraft Navigation or Aircraft Communication Systems, Air Traffic Control, Life Support, or Weapons Systems ("High Risk Activities"). Lantronix and its supplier(s) specifically disclaim any expressed or implied warranty of fitness for such High Risk Activities.

Network Safety

This subclause sets forth a number of recommendations and guidelines related to safety concerns. The list is neither complete nor does it address all possible safety issues. The designer is urged to consult the relevant local, national, and international safety regulations to verify compliance with the appropriate requirements. LAN cabling systems described in this clause are subject to at least four direct electrical safety hazards during their installation and use. These hazards are as follows:

- a) Direct contact between LAN components and power, lighting, or communications circuits.
- b) Static charge buildup on LAN cabling and components.
- c) High-energy transients coupled onto the LAN cabling system.
- d) Voltage potential differences between safety grounds to which various LAN components are connected.

Such safety hazards should be avoided or appropriately protected against for proper network installation and performance. In addition to provisions for proper handling of these conditions in an operational system, special measures should be taken to verify that the intended safety features are not negated during installation of a new network or during modification of an existing network.

Equipment shall comply with all applicable local and national codes related to safety.

Note that this manual provides links to third part web sites for which Lantronix is not responsible.

US Electrical System Design Standards

These US standards define all electrical rules and requirements necessary to connect and use electricity.

In the US, the basic standards to adhere to when designing electrical systems are:

- American National Standards Institute (ANSI)
- National Electrical Manufacturers Association (NEMA)
- Institute of Electrical and Electronics Engineers (IEEE) Standards
- National Electric Code (NEC) (required for electric service up to 600 Volts)
- IEEE color book publications (for IT installations in different facilities)

Other Worldwide Standards

Other standards to use worldwide are based on IEC (International Electrotechnical Commission) Standards:

- BS (British Standards)
- DIN (German Standards)
- CEI (Italian Standards)
- EN (European Norm) Standards

Low-line vs High-line Input Voltage Selection

Use diligence when selecting the proper input voltage in the Americas and other world regions that follow North American commercial wiring practices. Selecting low-line operation vs high-line operation affects power supply output capacity and reliability, power supply thermal operation, and power conversion efficiency.

Electrical Safety Warnings

Electrical Safety

IMPORTANT: This equipment must be installed in accordance with safety precautions.

Elektrische Sicherheit

WICHTIG: Für die Installation dieses Gerätes ist die Einhaltung von Sicherheitsvorkehrungen erforderlich.

Elektrisk sikkerhed

VIGTIGT: Dette udstyr skal installeres i overensstemmelse med sikkerhedsadvarslerne.

Elektrische veiligheid

BELANGRIJK: Dit apparaat moet in overeenstemming met de veiligheidsvoorschriften worden geïnstalleerd.

Sécurité électrique

IMPORTANT: Cet équipement doit être utilisé conformément aux instructions de sécurité.

Sähköturvallisuus

TÄRKEÄÄ: Tämä laite on asennettava turvaohjeiden mukaisesti.

Sicurezza elettrica

IMPORTANTE: questa apparecchiatura deve essere installata rispettando le norme di sicurezza.

Elektrisk sikkerhet

VIKTIG: Dette utstyret skal installeres i samsvar med sikkerhetsregler.

Segurança eléctrica

IMPORTANTE: Este equipamento tem que ser instalado segundo as medidas de precaução de segurança.

Seguridad eléctrica

IMPORTANTE: La instalación de este equipo deberá llevarse a cabo cumpliendo con las precauciones de seguridad.

Elsäkerhet

OBS! Alla nödvändiga försiktighetsåtgärder måste vidtas när denna utrustning används.

What's in the Box

Verify that you have received the following items. Contact your place of purchase if any item is missing or damaged. Please save the packaging for possible future use.

If ordered as SM24TBT2DPB (for Digital Electricity applications):

- One switch with one power supply included
- Two 19" rack mount brackets
- Eight screws
- One DB9F to RJ45 cable
- Four rubber feet
- One LTX insert card
- One printed Quick Start Guide

(If ordered as SM24TBT2DPB-2XPS, two power supplies are included.)

If ordered as SM24TBT2DPB-xx** (for AC or DC powered applications):

All of the above items plus:

- One Saf-D adapter cable
- Country-specific IEC adapter power cord(s) for low/high power AC and DC

(If ordered as SM24TBT2DPB-2XPS-xx, two power supplies and two sets of Saf-D adapter cables and power cords are included.)

**** Power Cord Included:** Power cord is selected to handle the higher power capability of this switch; use only power cords provided with your switch. To order the corresponding country specific power cord(s), add the extension to the end of the SKU. For example: SM24TBT2DPB-NA = North America, -LA = Latin America, -EU = Europe, -UK = United Kingdom, -SA = South Africa, -JP = Japan, -OZ = Australia, -BR = Brazil.

Note:

a. The switch is an indoor device. If you need to use it to connect outdoor devices such as outdoor IP cameras or outdoor WiFi Aps with cable, you must install an arrester on the cable between outdoor device and the switch.

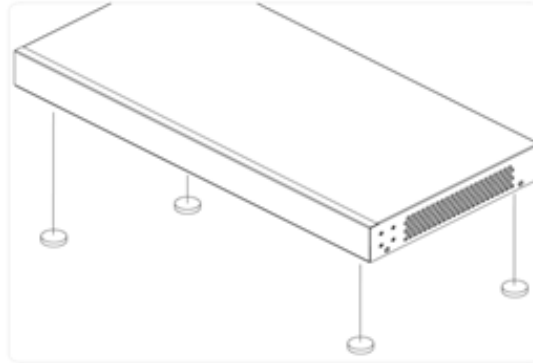


Add an arrester between outdoor device and this switch

b. The marking information is located at the bottom of apparatus (IEC 62368-1).

Mounting the Switch on Desk or Shelf

1. Verify that the workbench is sturdy and reliably grounded.
2. Attach the four adhesive rubber feet to the bottom of the switch.



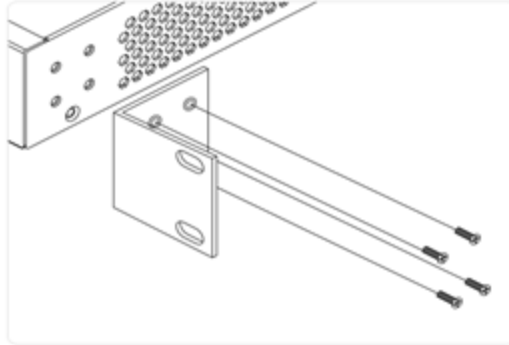
Safety Instructions for Rack Mount Installations

The instructions below (or similar) are intended for rackmount installation environments:

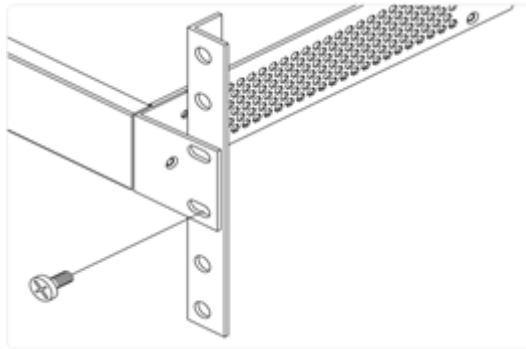
1. **Elevated Operating Ambient:** if installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may exceed room ambient. Install the equipment in an environment compatible with the maximum ambient temperature (T_{ma}) specified.
2. **Reduced Air Flow:** install the equipment in a rack so that the amount of air flow required for safe operation is not compromised.
3. **Mechanical Loading:** Mount the equipment in the rack so that a hazardous condition does not occur due to uneven mechanical loading (weight distribution/rack balance).
4. **Circuit Overloading:** consider the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Consider all equipment nameplate ratings when addressing this concern.
5. **Reliable Earthing:** maintain reliable earthing of rack-mounted equipment; pay particular attention to supply connections other than direct connections to the branch circuit (e.g., use of power strips).

Mounting the Switch in a 19-inch Rack

1. Attach the mounting brackets to both sides of the chassis. Insert screws and tighten with a screwdriver to secure the brackets.



2. Place the switch on a rack shelf in the rack. Push it in until the oval holes in the brackets align with the mounting holes in the rack posts.



3. Attach the brackets to the posts. Insert screws and tighten them.

Installing SFP Modules

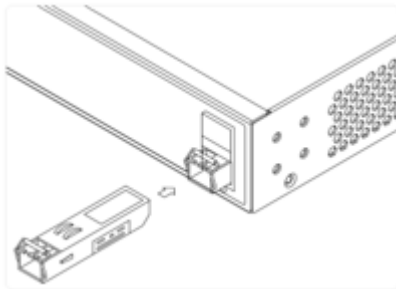
You can install or remove a mini-GBIC SFP module from an SFP port without having to power off the switch.

Note: The SFP ports should use UL Listed Optional Transceiver product, Rated 3.3Vdc, Laser Class 1. See the SFP manual for specific cautions, warnings, and instructions. See the Lantronix [SFP page](#) for our full range of Optical Devices.

During installation and maintenance, avoid direct exposure to laser beams. Specifically, do not look into laser ports. Ensure that each SFP port at which laser beams are (or will be) present is occupied by an SFP that is locked in position.

1. Position the SFP device at either installation slot, with the SFP label facing up (Port 25) or down (Port 26).
2. Carefully slide the SFP device into the slot, aligning it with the internal installation guides.
3. Press firmly to ensure that the SFP device is firmly seated against the internal mating connector.
4. Attach an appropriate cable into the SFP module port.
5. Attach the other end of the cable to the other device.

Note: Do not remove and replace SFP modules more often than necessary; excessive SFP removing/replacing can shorten the SFPs useful life.



Grounding

ATTENTION:

This case must be earth grounded.
No DC input may be earth grounded.
Use Isolated Power Supply.

ATTENTION

This case must be earth grounded.
No DC input may be earth grounded
Use Isolated Power Supply

3. Power Supply Information

The SM24TBT2DPB ships with one PS-ACDC-1200 power supply, which enables up to 900W of total PoE power when connected to low-line AC or DC power or 1080W with high-line AC or DC power. A second PS-ACDC-1200 power supply can be installed for redundancy or to provide increased PoE power. With two hot-swappable power supplies the switch can provide up to 1800W of total PoE power when connected to low-line AC or DC power or 2150W with high-line AC or DC power.

Cautions and Warnings

WARNING! Hot Surface Do Not Touch

CAUTION HAZARDOUS AREA: Do not remove this cover. Trained service people only. No serviceable components inside.

DC INPUT FOR UL, CUL & CCC ONLY USE

Warning! For continued protection against risk of fire, replace only with same type and rating of fuse.

Warning: This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.



PS-ACDC-1200 Power Supply



PS-ACDC-1200 Features

Secondary AC & DC Modular Power Supply

- 1080 Watts PoE Output Max.
- Dual Hot-Swappable Power Supplies
- Power Redundancy
- Failover
- AC low-line: 100 - 120VAC
- AC high line: 200 - 277VDC
- HVDC low-line : 194 – 254VDC
- HVDC high-line: 306 - 334VDC
- Saf-D connector for HVDC input
- Saf-D to IEC cable provided for AC input
- Warranty: 5-Years for Power Supply

PS-ACDC-1200 Specifications

AC INPUT:

1000W: 100-120Vac, 50/60Hz or
50-60Hz, 12A MAX.

1200W: 200-277Vac, 50/60Hz or
50-60Hz, 8.5A MAX.

DC INPUT:

217VDC, 7.5A for 1000W

306-334VDC, 7.5A for 1200W

DC OUTPUT:

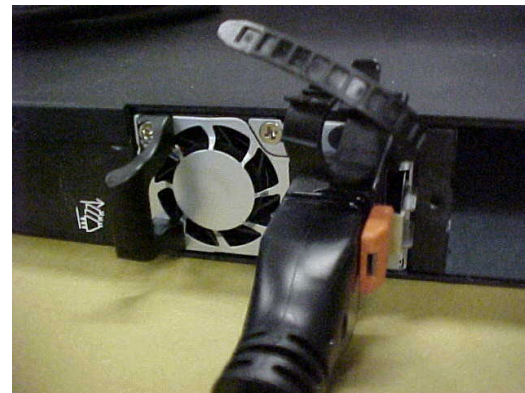
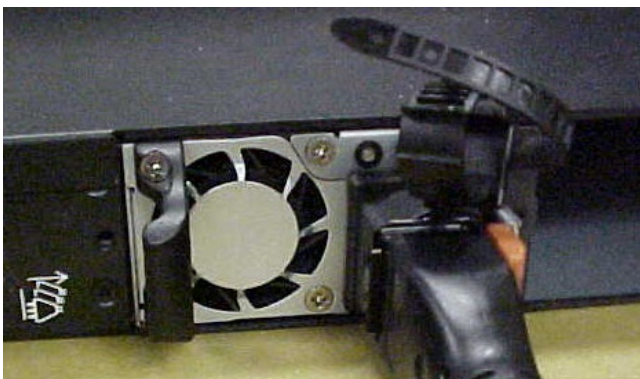
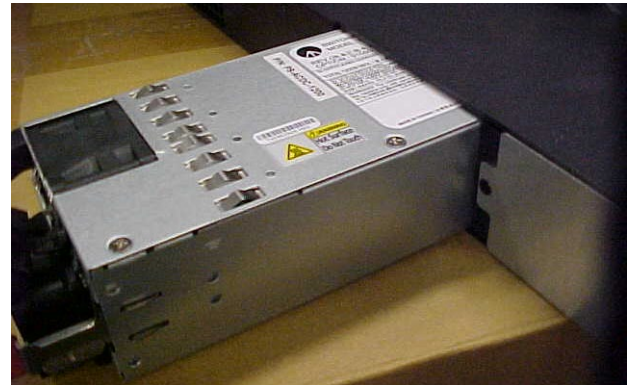
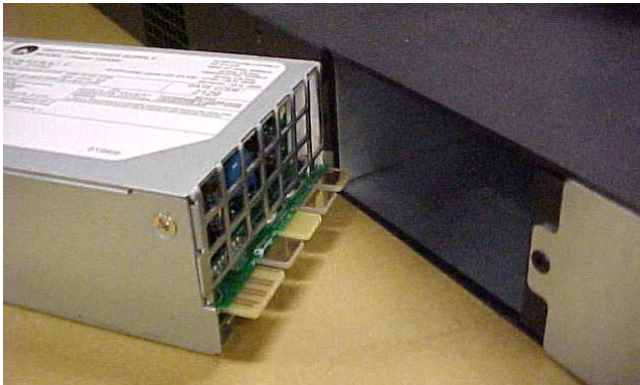
1200W: 54.5Vdc/22.02A

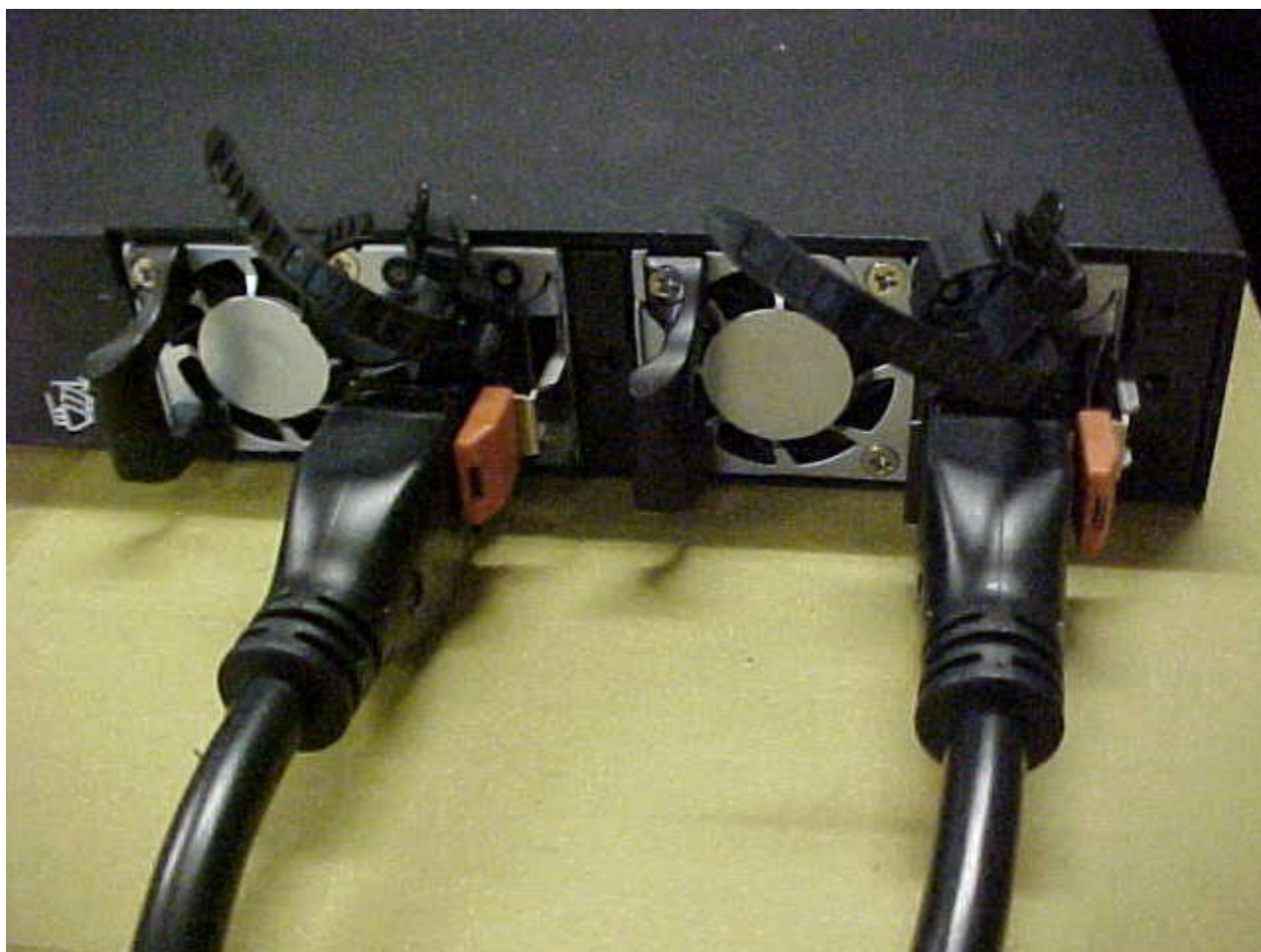
1000W: 54.5Vdc/18.5A

TOTAL 1200W MAX.

PS-ACDC-1200 Install Orientation

Caution: You must install the PS-ACDC-1200 Power Supply with the edge connector down (the label facing up). If installed otherwise, the edge connector may be damaged.





Saf-D-Grid® Connector

First Mate, Last Break Ground Contact: Provides the safety of an earthing path before engagement of the power contacts.



First Mate, Last Break Ground Contact
- Ultra Short Receptacle



Integral Latch
- T-Latch Straight Plug

Integral Latch: Connectors cannot be accidentally unmated, preventing unwanted power loss to critical equipment.

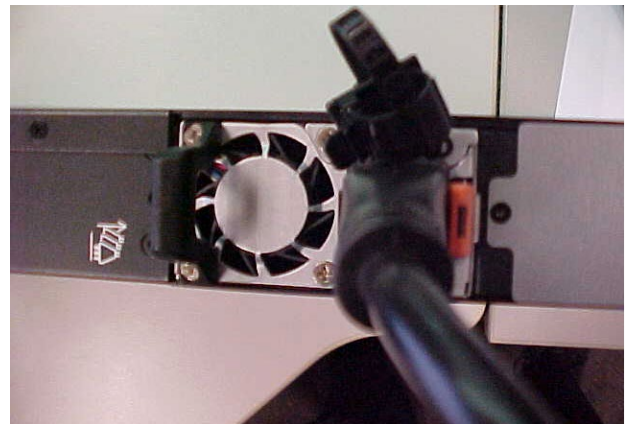
Hot plug Rated: The connectors are rated for current interruption for both electronic and electrical loads.

Touch Safe/Shock Protection: Minimizes the risk of personal contact with a hazardous voltage. Passes UL & IEC finger probe (plug & receptacle) and 3mm probe tests (receptacle).

Arcing Protection: Housing contains the arc if connectors are mated or unmated while under load, minimizing risk to personnel.



**Saf-D adapter cable for use with
PS-ACDC-1200 Power Supply**



**PS-ACDC-1200 Power Supply
Installed and Connected**

Note: Saf-D-Grid is a registered trademark of Anderson Power Products.

If Using AC Power

1. Connect the Saf-D plug of the Saf-D adapter cord to the Saf-D receptacle on the switch power supply.
2. Connect the IEC plug end of the Saf-D adapter cord to the IEC receptacle end of the power cord.
3. Plug the power cord into an AC wall outlet.
4. Check the SYS LED. If it is ON, the power connection is correct.

If using two power supplies, repeat steps 1-4 for the second power supply.

If Using DC Power

1. Connect the Saf-D plug of the Saf-D adapter cord to the Saf-D receptacle on the switch power supply.
2. Cut off the receptacle end of the Saf-D adapter cord, strip the insulation on each wire back approximately 0.25" (6mm). Twist the stranded wire ends to facilitate connection of the wires to an appropriate DC power source of your choice, ensuring the specifications meet the designated DC power requirements. (See "PS-ACDC-1200 Output Specifications" for acceptable DC power source specifications).

If Using Digital Electricity™ (DE)

1. Follow the DE equipment provider's instructions to connect the Saf-D plug on the cable to the Saf-D receptacle on the switch's power supply.

* Digital Electricity is a trademark of VoltServer. For more information about Digital Electricity, visit <https://www.voltserver.com/>.

Replacing a High Voltage (HVAC/HVDC) Power Supply

The switch requires two power supplies for redundancy. With one power supply providing the necessary power for operations, you can replace the other power supply during operations.

Before you begin:

- The replacement power supply must have the same wattage as the power supply being replaced.
- An HVAC/HVDC power source must be within reach of the power cable that will be used with the replacement power supply. If you are using n+n power redundancy, there must be a separate power source for each power supply installed in the chassis.
- There must be an earth ground connection to the chassis in which you are installing the replacement power supply. HVAC/HVDC power supplies connected to AC power sources are automatically grounded by their power cable when connected to the power supply and AC power source. HVAC/HVDC power supplies connected to DC power sources have Saf-D-Grid power cables with three connectors on the power source end; you connect one of those connectors to the earth ground.

Step 1: Remove an HVAC/HVDC Power Supply as follows:

- a) Turn off the circuit breaker for the power feed to the power supply that you are replacing. Be sure that the LEDs turn off on the power supply that you are removing.
- b) Remove the power cable from the power supply by pressing the tab on the top of the Saf-D-Grid connector and pull the cable and connector out of the power supply.
- c) Grasp the power supply handle while pressing the colored release latch towards the power supply handle.
- d) Place your other hand under the power supply to support it while you slide it out of the chassis.

Caution: Do not touch the electrical connections on the back side of the module and prevent anything else from contacting and damaging the connectors.

Step 2: Install the Replacement Power Supply as follows:

- a) Holding the replacement power supply with one hand underneath the module and the other hand holding the handle, turn the power supply so that its release latch is on the right side and align the back end of the power supply (the end with the electrical connections) to the open power supply slot before carefully sliding the power supply all the way into the slot until it clicks into place.

Note: If the power supply does not fit into the open slot, turn the module over before sliding it carefully into the open slot.

- b) Test the installation by trying to pull the power supply out of the slot without using the release latch. If the power supply does not move out of place, it is secured in the slot. If the power supply moves, carefully press it all the way into the slot until it clicks in place.
- c) Attach the Saf-D-Grid end of the adapter cable to the electrical outlet on the front of the power supply.
- d) Attach the other end of the Saf-D adapter cable to the IEC end of the power cable.
 - For an AC power source, plug the other end of the power cable into the AC power source.
 - For a HVDC power source, cut off the receptacle end of the Saf-D adapter cord, and strip the insulation on each wire back approximately 0.25" (6mm). Twist the stranded wire ends to facilitate connection of the wires to an appropriate DC power source of your choice, ensuring the specifications meet the designated DC power requirements as listed previously in this Guide. Verify that the circuit breaker is turned off and then connect each of the three cable connectors to the appropriate DC and grounding terminals on the power source. If there is a cover plate for the DC terminals, install the plate to prevent accidental contact with the terminals.
- e) If using an HVDC power source, turn on the circuit breaker for the power source.
- f) Verify that the power supply is operational by making sure that the power supply LED is green.
- g) If using Digital Electricity (DE), follow the DE equipment provider's instructions to connect the Saf-D plug on the cable to the Saf-D receptacle on the switch's power. Note: Digital Electricity is a trademark of VoltServer. For more information about Digital Electricity, visit <https://www.voltserver.com/>.

4. Initial Switch Configuration

Initial Switch Configuration via Web Browser

After powering up the switch for the first time, perform initial switch configuration using a web browser. For managing other switch features, see the Web User Guide for details.

To begin the initial configuration, you must reconfigure your PC's IP address and subnet mask to make sure the PC can communicate with the switch. After changing PC's IP address (e.g., 192.168.1.250), you can access the switch Web UI using the switch's default IP address (192.168.1.77) and default Subnet Mask (255.255.255.0).

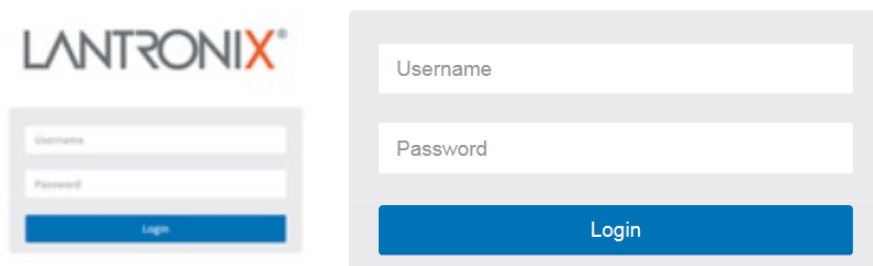
1. Power up the PC that you will use for the initial configuration. Please make sure the PC has the Ethernet RJ45 connector to be connected to the switch via standard Ethernet LAN cable.
 2. Reconfigure the PC's IP address and Subnet Mask as below, so that it can communicate with the switch. The method to change the PC's IP address, for example, for a PC running Windows® 7/8.x/10, is:
 - 2a: Type "network and sharing" into the Search box in the Start Menu.
 - 2b: Select Network and Sharing Center
 - 2c: Click on Change adapter settings on the left of PC screen

Note: You can skip step 2a to 2c by pressing WinKey+R and type "ncpa.cpl" command to get to step 2d directly.

 - 2d: Right-click on your local adapter and select Properties
 - 2e: In the Local Area Connection Properties window highlight Internet Protocol Version 4 (TCP/IPv4) then click the Properties button.

Note: Be sure to record all your PC's current IP settings to be able to restore them later.

 - 2f: Select the radio button Enter the IP address for the PC (e.g., any IP address not in use, and between 192.168.1.78 and 192.168.1.254), Subnet mask (e.g., 255.255.255.0), and Default gateway that corresponds with your network setup. Then enter your Preferred and Alternate DNS server addresses.
 - 2g: Click **OK** to change the PC's IP address.
 3. Power up the switch to be initially configured and wait until it has finished its start-up processes.
 4. Connect the PC to any port on the switch using a standard Ethernet cable, and check the port LED on the switch to make sure the link status of the PC is OK.
 5. Run your Web browser on the PC; enter the factory default IP address to access the switch's Web interface.
- If your PC is configured correctly, the switch Login page displays as shown below:



If you do not see the above Login page, try these steps:

- Refresh the web page.
 - Check to see if there is an IP address conflict.
 - Clear browser cookies and temporary internet files.
 - Check your PC settings again and repeat step 2.
6. Enter the factory default username (**admin**) and password (**admin**) on login page.
 7. Click "Login" to log into the switch. See the *Web User Guide* for additional information.

Initial Switch Configuration via CLI

Use an RJ-45 cable to connect a terminal or PC/terminal emulator to the switch port to access the CLI.

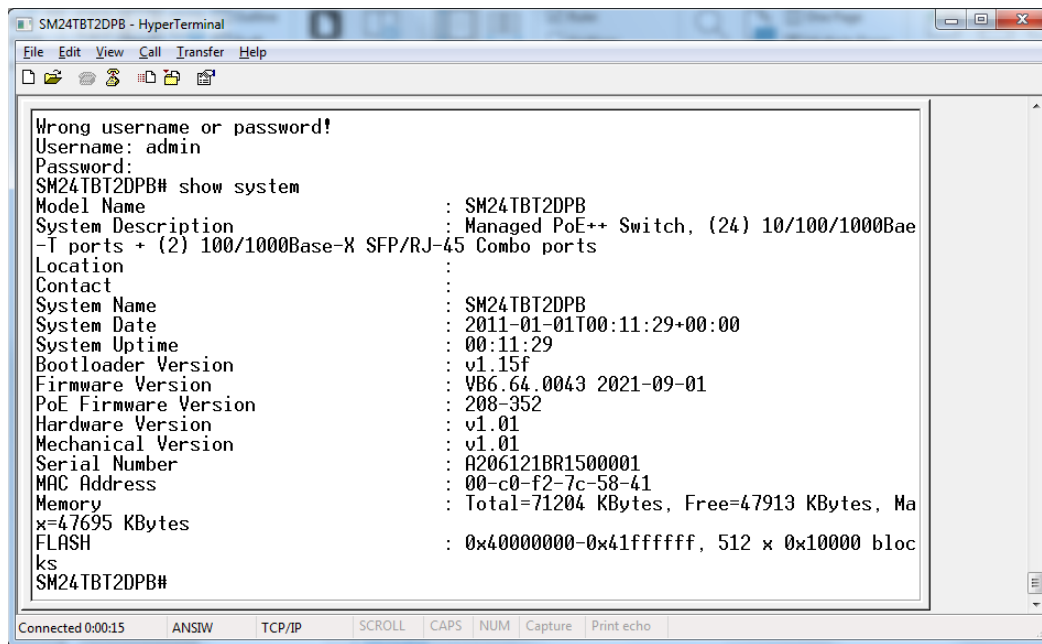
Attach the RJ-45 serial port on the switch front panel to the cable for Telnet/CLI configuration.

Attach the other end of the DB-9 cable to a PC running Telnet or a terminal emulation program such as HyperTerminal or Tera Term.

After powering up the switch for the first time, you can perform the initial switch configuration using the CLI (Command Line Interface). For managing other switch features, see the *CLI Reference* for details.

Switch CLI Command Notes

The SM24TBT2DPB `show system` command:



```

SM24TBT2DPB - HyperTerminal
File Edit View Call Transfer Help
Wrong username or password!
Username: admin
Password:
SM24TBT2DPB# show system
Model Name                : SM24TBT2DPB
System Description        : Managed PoE++ Switch, (24) 10/100/1000Base
-T ports + (2) 100/1000Base-X SFP/RJ-45 Combo ports
Location                  :
Contact                   :
System Name               : SM24TBT2DPB
System Date               : 2011-01-01T00:11:29+00:00
System Uptime             : 00:11:29
Bootloader Version        : v1.15f
Firmware Version          : VB6.64.0043 2021-09-01
PoE Firmware Version      : 208-352
Hardware Version          : v1.01
Mechanical Version        : v1.01
Serial Number             : A206121BR1500001
MAC Address               : 00-c0-f2-7c-58-41
Memory                    : Total=71204 KBytes, Free=47913 KBytes, Ma
x=47695 KBytes
FLASH                     : 0x40000000-0x41ffffff, 512 x 0x10000 bloc
ks
SM24TBT2DPB#
Connected 0:00:15  ANSIV  TCP/IP  SCROLL  CAPS  NUM  Capture  Print echo

```

The SM24TBT2DPB `show power management` command with one PS-ACDC-1200 power supply installed:

```

SM24TBT2DPB# show power management
Power Management
=====
Power                : A      B
Detected PSU         : PSU-HV  None
Power Good           : Good   Fail
Power Input(AC/DC)   : Good   Fail
Power Input Voltage (V) : 123   ---
FAN Speed (RPM)      : 2911  0
Temperature (Degree C) : 42    0
Operating Mode       : Redundant
SM24TBT2DPB#

```

Note: the PS-ACDC-1200 power supply is displayed as Detected PSU = "PSU-HV".

The SM24TBT2DPB `show power management` command with two PS-ACDC-1200 power supplies installed:

```
SM24TBT2DPB# show power management
Power Management
=====
Power                : A          B
Detected PSU         : PSU-HV    PSU-HV
Power Good           : Good      Good
Power Input(AC/DC)   : Good     Good
Power Input Voltage (V) : 123     123
FAN Speed (RPM)      : 3041    2954
Temperature (Degree C) : 42      47
Operating Mode       :
SM24TBT2DPB#
```

The SM24TBT2DPB `show power management` command with two PS-ACDC-1200 power supplies installed in **Boost** mode:

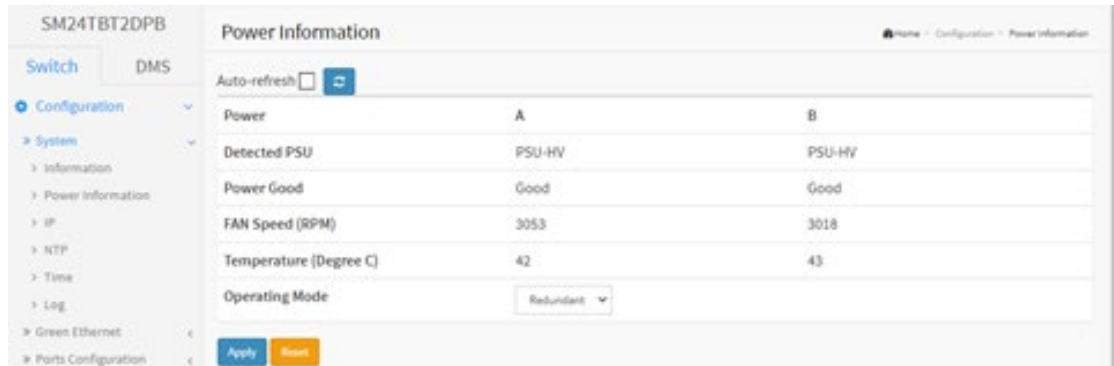
```
SM24TBT2DPB# show power management
Power Management
=====
Power                : A          B
Detected PSU         : PSU-HV    PSU-HV
Power Good           : Good      Good
FAN Speed (RPM)      : 2899    3022
Temperature (Degree C) : 42      43
Operating Mode       : Boost
SM24TBT2DPB#
```

The SM24TBT2DPB `show power management` command with two PS-ACDC-1200 power supplies installed in **Boost** mode, then changed to **Redundant** mode:

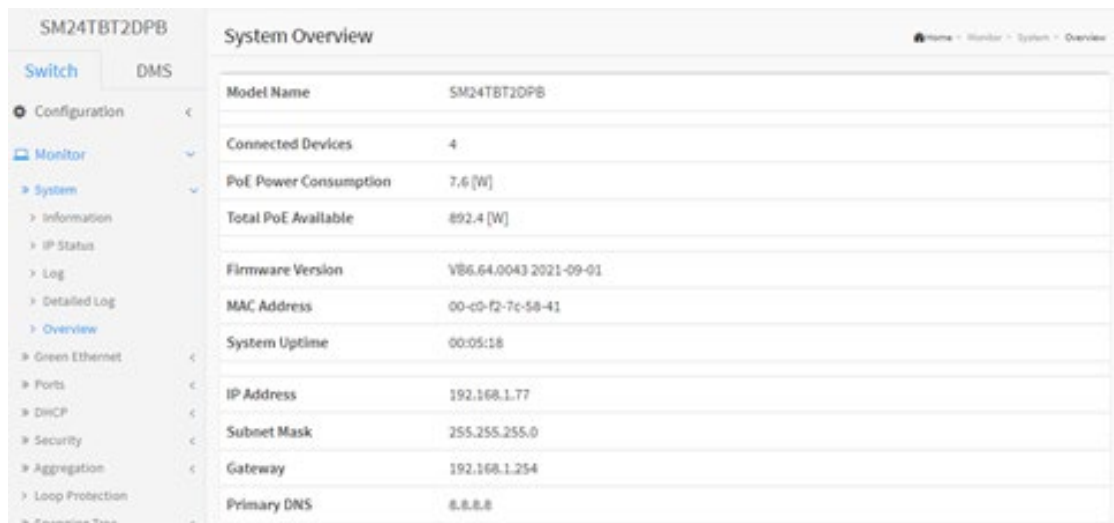
```
SM24TBT2DPB(config)# do show power management
Power Management
=====
Power                : A          B
Detected PSU         : PSU-HV    PSU-HV
Power Good           : Good      Good
FAN Speed (RPM)      : 2889    3015
Temperature (Degree C) : 42      43
Operating Mode       : Boost
SM24TBT2DPB(config)# Power Redundant
SM24TBT2DPB(config)# do show power management
Power Management
=====
Power                : A          B
Detected PSU         : PSU-HV    PSU-HV
Power Good           : Good      Good
FAN Speed (RPM)      : 2902    3013
Temperature (Degree C) : 42      43
Operating Mode       : Redundant
SM24TBT2DPB(config)#
```

Switch Configuration Web UI Notes

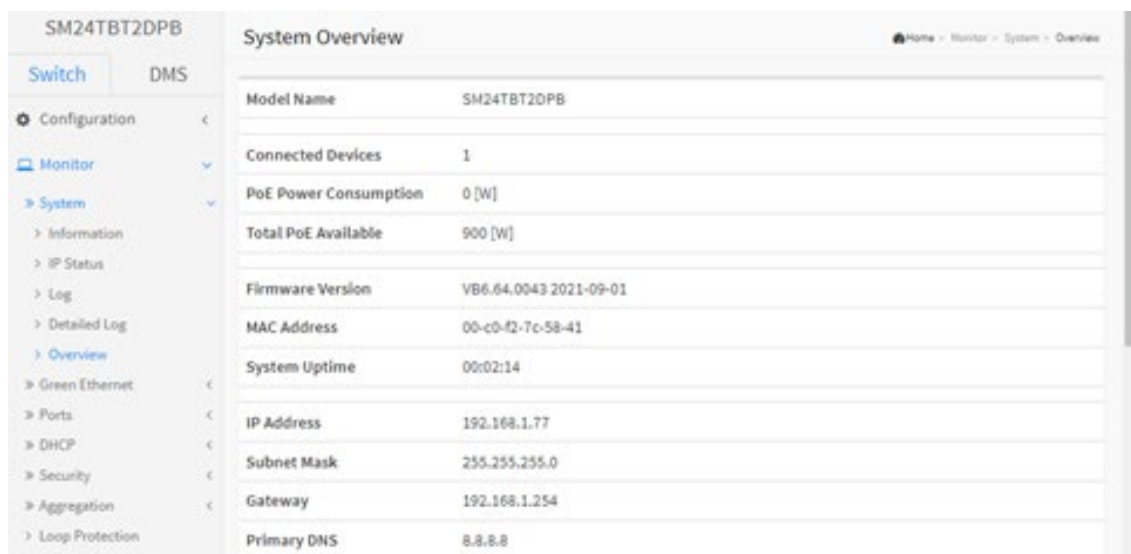
SM24TBT2DPB Configuration > System > Power Information with two PS-ACDC-1200 power supplies installed:



SM24TBT2DPB System Overview with one PS-ACDC-1200 power supply installed:



SM24TBT2DPB System Overview with one PS-ACDC-1200 power supply – shows Total PoE Available = 900W:



SM24TBT2DPB-2XPS Power Supply Operating Mode Settings

The SM24TBT2DPB ships with one PS-ACDC-1200 power supply, which lets it supply up to 90 Watts per port. The SM24TBT2DPB with a second PS-ACDC-1200 power supply added, or SM24TBT2DPB-2XPS if shipped with the second power supply included, can provide full PoE++ output on all 24-ports with its two hot-swappable PS-ACDC-1200 power supplies.

When Power Supply Operating Mode = Redundant Mode at Configuration > System > Power Information:

The screenshot shows the 'Power Information' configuration page. At the top, there is an 'Auto-refresh' checkbox and a refresh icon. Below this is a table with three columns: 'Power', 'A', and 'B'. The table contains the following data:

Power	A	B
Detected PSU	None	PSU-HV
Power Good	Fail	Good
FAN Speed (RPM)	0	4671
Temperature (Degree C)	0	37

Below the table, the 'Operating Mode' is set to 'Redundant' in a dropdown menu. There are 'Apply' and 'Reset' buttons at the bottom left of the configuration area.

With Power Supply Operating Mode configured as “Redundant” Mode, the two power supplies are mutually redundant. If one of the power supplies fails, the other power supply can keep the system working normally.

The PoE maximum output power of the two power supplies cannot be aggregated. The PoE maximum output Power Budget in “Redundant” Mode is equal to the PoE Budget of a single power supply.

With Power Supply Operating Mode set to Boost Mode:

- When Power Supply Operating Mode is set to “Boost” at the Configuration > System > Power Information page, the power supply redundancy function will be disabled. If one of the power supplies fails, and the PoE power consumption is over the other power supply’s Max. PoE output power capability, the power supply will overload and shutdown this PoE switch.
- The PoE maximum output power of the two power supplies can be aggregated. The PoE Max. PoE output Power Budget in Boost Mode is equal to the Power Supply A + Power Supply B.

SM24TBT2DPB-2XPS Power Supply Operating Mode = Redundant Mode (default) at Configuration > System > Power Information:

The screenshot shows the 'Power Information' configuration page for the SM24TBT2DPB. The left sidebar shows the navigation menu with 'Configuration' selected. The main content area shows the 'Power Information' page with the following data:

Power	A	B
Detected PSU	PSU-HV	PSU-HV
Power Good	Good	Good
FAN Speed (RPM)	3053	3018
Temperature (Degree C)	42	43

The 'Operating Mode' dropdown menu is open, showing 'Redundant' as the selected option. There are 'Apply' and 'Reset' buttons at the bottom left.

Power Supply Operating Mode = Boost Mode at Configuration > System > Power Information:

The screenshot displays the 'Power Information' page in the Lantronix web interface. On the left is a navigation menu with 'Configuration' selected. The main content area shows a table with two columns, 'A' and 'B', and several rows of power-related data. At the bottom of the table, the 'Operating Mode' is set to 'Boost' via a dropdown menu. There are 'Apply' and 'Reset' buttons below the table. An 'Auto-refresh' checkbox is also present at the top left of the table area.

Power	A	B
Detected PSU	PSU-HV	PSU-HV
Power Good	Good	Good
FAN Speed (RPM)	2889	3024
Temperature (Degree C)	42	43
Operating Mode	Boost	

5. Related Information

Power Consumption Specifications

1. AC 100V@60Hz Input

Device Status	Oper. Interface	AC Voltage (V)	AC Current Consumption (A)	Power Factor	Apparent Power (VA)	Real Power (W)
Non-loading	None	100	0.32	0.937	32.00	29.98
No PoE Loading	1G RJ45 x 24 1G SFP x 2	100	0.43	0.930	43.00	39.99
No PoE Loading	1G RJ45 x 26	100	0.43	0.930	43.00	39.99
PoE Full-loading	1G RJ45 x 24 1G SFP x 2	100	10.44	0.995	1044.00	1038.78
PoE Full-loading	1G RJ45 x 26	100	10.45	0.995	1045.00	1039.78

Note:

Apparent Power (VA) = AC Voltage x AC Current Consumption.

Real Power (W) = Apparent Power (VA) x Power Factor.

2. AC 110V@60Hz Input

Device Status	Oper. Interface	AC Voltage (V)	AC Current Consumption (A)	Power Factor	Apparent Power (VA)	Real Power (W)
Non-loading	None	110	0.3	0.909	33.00	30.00
No PoE Loading	1G RJ45 x 24 1G SFP x 2	110	0.38	0.975	41.80	40.76
No PoE Loading	1G RJ45 x 26	110	0.38	0.975	41.80	40.76
PoE Full-loading	1G RJ45 x 24 1G SFP x 2	110	9.37	0.993	1030.70	1023.49
PoE Full-loading	1G RJ45 x 26	110	9.37	0.994	1030.70	1024.52

Note:

Apparent Power (VA) = AC Voltage x AC Current Consumption.

Real Power (W) = Apparent Power (VA) x Power Factor.

3. AC 220V@50Hz Input

Device Status	Oper. Interface	AC Voltage (V)	AC Current Consumption (A)	Power Factor	Apparent Power (VA)	Real Power (W)
Non-loading	None	220	0.23	0.580	50.60	29.35
No PoE Loading	1G RJ45 x 24 1G SFP x 2	220	0.27	0.661	59.40	32.96
No PoE Loading	1G RJ45 x 26	220	0.28	0.655	61.60	40.35
PoE Full-loading	1G RJ45 x 24 1G SFP x 2	220	5.52	0.987	1214.40	1198.61
PoE Full-loading	1G RJ45 x 26	220	5.52	0.987	1214.40	1198.61

Note:

Apparent Power (VA) = AC Voltage x AC Current Consumption.

Real Power (W) = Apparent Power (VA) x Power Factor.

4. AC 240V@50Hz Input

Device Status	Oper. Interface	AC Voltage (V)	AC Current Consumption (A)	Power Factor	Apparent Power (VA)	Real Power (W)
Non-loading	None	240	0.24	0.508	57.60	29.26
No PoE Loading	1G RJ45 x 24 1G SFP x 2	240	0.27	0.609	64.80	39.46
No PoE Loading	1G RJ45 x 26	240	0.28	0.597	67.20	40.12
PoE Full-loading	1G RJ45 x 24 1G SFP x 2	240	5.06	0.985	1214.40	1196.18
PoE Full-loading	1G RJ45 x 26	240	5.05	0.985	1212.00	1193.82

Note:

Apparent Power (VA) = AC Voltage x AC Current Consumption.

Real Power (W) = Apparent Power (VA) x Power Factor.

5. AC 264V@50Hz Input

Device Status	Oper. Interface	AC Voltage (V)	AC Current Consumption (A)	Power Factor	Apparent Power (VA)	Real Power (W)
Non-loading	None	264	0.24	0.444	63.36	28.13
No PoE Loading	1G RJ45 x 24 1G SFP x 2	264	0.28	0.547	73.92	40.43
No PoE Loading	1G RJ45 x 26	264	0.28	0.547	73.92	40.43
PoE Full-loading	1G RJ45 x 24 1G SFP x 2	264	4.60	0.983	1214.40	1193.76
PoE Full-loading	1G RJ45 x 26	264	4.60	0.982	1214.40	1192.54

Note:

Apparent Power (VA) = AC Voltage x AC Current Consumption.

Real Power (W) = Apparent Power (VA) x Power Factor.

6. AC 100V@60Hz Input

Device Status	Oper. Interface	AC Voltage (V)	AC Current Consumption (A)	Power Factor	Apparent Power (VA)	Real Power (W)
Non-loading	None	100	0.56	0.892	56.00	49.95
No PoE Loading	1G RJ45 x 24 1G SFP x 2	100	0.60	0.883	60.00	52.98
No PoE Loading	1G RJ45 x 26	100	0.60	0.900	60.00	54.00
PoE Full-loading	1G RJ45 x 24 1G SFP x 2	100	20.66	0.991	2066.00	2047.41
PoE Full-loading	1G RJ45 x 26	100	20.67	0.991	2067.00	2048.40

Note:

Apparent Power (VA) = AC Voltage x AC Current Consumption

Real Power (W) = Apparent Power (VA) x Power Factor

7. AC 110V@60Hz Input

Device Status	Oper. Interface	AC Voltage (V)	AC Current Consumption (A)	Power Factor	Apparent Power (VA)	Real Power (W)
Non-loading	None	110	0.52	0.877	57.20	50.16
No PoE Loading	1G RJ45 x 24 1G SFP x 2	110	0.55	0.883	60.50	53.42
No PoE Loading	1G RJ45 x 26	110	0.55	0.900	60.50	54.45
PoE Full-loading	1G RJ45 x 24 1G SFP x 2	110	18.62	0.992	2048.20	2031.81
PoE Full-loading	1G RJ45 x 26	110	18.64	0.990	2050.40	2029.90

Note:

Apparent Power (VA) = AC Voltage x AC Current Consumption

Real Power (W) = Apparent Power (VA) x Power Factor

8. AC 220V@50Hz Input

Device Status	Oper. Interface	AC Voltage (V)	AC Current Consumption (A)	Power Factor	Apparent Power (VA)	Real Power (W)
Non-loading	None	220	0.46	0.495	101.20	50.59
No PoE Loading	1G RJ45 x 24 1G SFP x 2	220	0.46	0.524	101.20	53.03
No PoE Loading	1G RJ45 x 26	220	0.46	0.524	101.20	53.03
PoE Full-loading	1G RJ45 x 24 1G SFP x 2	220	11.13	0.987	2448.60	2416.77
PoE Full-loading	1G RJ45 x 26	220	11.13	0.986	2448.60	2414.32

Note:

Apparent Power (VA) = AC Voltage x AC Current Consumption

Real Power (W) = Apparent Power (VA) x Power Factor

9. AC 240V@50Hz Input

Device Status	Oper. Interface	AC Voltage (V)	AC Current Consumption (A)	Power Factor	Apparent Power (VA)	Real Power (W)
Non-loading	None	240	0.47	0.446	112.80	50.31
No PoE Loading	1G RJ45 x 24 1G SFP x 2	240	0.47	0.473	112.80	53.35
No PoE Loading	1G RJ45 x 26	240	0.47	0.473	112.80	53.35
PoE Full-loading	1G RJ45 x 24 1G SFP x 2	240	10.20	0.984	2448.00	2408.83
PoE Full-loading	1G RJ45 x 26	240	10.20	0.985	2448.00	2411.28

Note:

Apparent Power (VA) = AC Voltage x AC Current Consumption

Real Power (W) = Apparent Power (VA) x Power Factor

10. AC 264V@50Hz Input

Device Status	Oper. Interface	AC Voltage (V)	AC Current Consumption (A)	Power Factor	Apparent Power (VA)	Real Power (W)
Non-loading	None	264	0.46	0.413	121.44	50.15
No PoE Loading	1G RJ45 x 24 1G SFP x 2	264	0.46	0.429	121.44	52.10
No PoE Loading	1G RJ45 x 26	264	0.46	0.438	121.44	53.19
PoE Full-loading	1G RJ45 x 24 1G SFP x 2	264	9.27	0.982	2447.28	2403.23
PoE Full-loading	1G RJ45 x 26	264	9.27	0.982	2447.28	2403.23

Note:

Apparent Power (VA) = AC Voltage x AC Current Consumption

Real Power (W) = Apparent Power (VA) x Power Factor

11. DC 184V Input

Device Status	Oper. Interface	DC Voltage (V)	DC Current Consumption (A)	Real Power (W)	BTU/Hr.
Non-loading	None	184	0.27	49.68	169.41
Standby mode	1G RJ45 x 24 1G SFP x 2	184	0.3	55.20	188.23
Standby mode	1G RJ45 x 26	184	0.3	55.20	188.23
Full loading 60 minutes later	1G RJ45 x 24 1G SFP x 2	184	11.0	2024.00	6901.84
Full loading 60 minutes later	1G RJ45 x 26	184	11.02	2027.68	6914.39

12. DC 264V Input

Device Status	Oper. Interface	DC Voltage (V)	DC Current Consumption (A)	Real Power (W)	BTU/Hr.
Non-loading	None	264	0.19	50.16	171.05
Standby mode	1G RJ45 x 24 1G SFP x 2	264	0.2	52.80	180.05
Standby mode	1G RJ45 x 26	264	0.2	52.80	180.05
Full loading 60 minutes later	1G RJ45 x 24 1G SFP x 2	264	7.59	2003.76	6832.82
Full loading 60 minutes later	1G RJ45 x 26	264	7.60	2006.40	6841.82

13. DC 265V Input

Device Status	Oper. Interface	DC Voltage (V)	DC Current Consumption (A)	Real Power (W)	BTU/Hr.
Non-loading	None	265	0.19	50.35	171.69
Standby mode	1G RJ45 x 24 1G SFP x 2	265	0.2	53.00	180.73
Standby mode	1G RJ45 x 26	265	0.2	53.00	180.73
Full loading 60 minutes later	1G RJ45 x 24 1G SFP x 2	265	9.04	2395.60	8169.00
Full loading 60 minutes later	1G RJ45 x 26	265	9.04	2395.60	8169.00

14. DC 400V Input

Device Status	Oper. Interface	DC Voltage (V)	DC Current Consumption (A)	Real Power (W)	BTU/Hr.
Non-loading	None	400	0.18	72.00	245.52
Standby mode	1G RJ45 x 24 1G SFP x 2	400	0.19	76.00	259.16
Standby mode	1G RJ45 x 26	400	0.19	76.00	259.16
Full loading 60 minutes later	1G RJ45 x 24 1G SFP x 2	400	6	2400.00	8184.00
Full loading 60 minutes later	1G RJ45 x 26	400	6	2400.00	8184.00

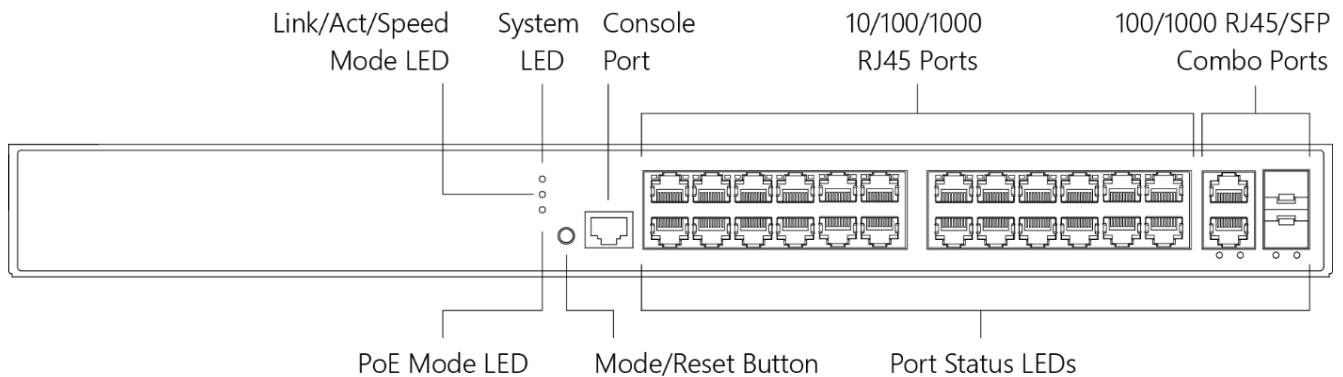
Troubleshooting

Basic Troubleshooting

1. Make sure your switch model supports the feature or function attempted; see [Features](#) on page 6 and check the Release Notes for your specific version.
2. Verify the install process; see chapter 2 [Installation](#) on page 16.
3. Verify the initial switch configuration; see chapter 4 [Initial Switch Configuration](#) on page 29.
4. Troubleshoot connected network devices to pinpoint the problem to the switch.
5. Run the System Diagnostics (ping, cable diagnostics, traceroute). See the Web User Guide or CLI Reference.
6. Reset the switch; see [Mode/Reset button](#) on page 15.
7. Restore the switch to its factory default settings; see [Mode/Reset button](#) on page 15.
8. If using the CLI, try configuring/testing via the Web UI and vice versa. See the Web User Guide or the CLI Reference.

LED Summary

Category	LED	Color	Function
Global	System/Alarm	Green	LED Off: The switch is not receiving power. LED On: The switch is Powered On.
Global	Red / Alarm	Red	LED Off: AC Power Supply or Normal Power Supply. LED On: Power not sufficient to power switch.
TP Ports 1-24	Link/Act	Green/ Amber	LED Off: Port disconnection or link fail. Green On: 1000M Ethernet link good. Amber On: 100M/10M Ethernet link good. Amber blinking: this port is receiving or transmitting data.
TP Ports 25-26	Link/Act	Green/ Amber	LED Off: Port disconnection or link fail. Green On: 1000M Ethernet link good. Amber On: 100M/10M Ethernet link good. Amber blinking: this port is receiving or transmitting data.
Fiber Ports 25-26	Link/Act	Green/ Amber	LED Off: Port disconnection or link fail. Green On: 10G/1000M Ethernet link good. Amber On: 100M/10M Ethernet link good. Amber blinking: this port is receiving or transmitting data.



LED Troubleshooting

Use the table below to troubleshoot problems by taking actions based on the suggested solutions within.

Symptom	Possible Cause	Suggested Solution
SYSTEM LED is Off	The switch is not receiving power.	<ol style="list-style-type: none"> 1. Check if correct power cord is connected firmly to the switch and to the AC outlet socket. 2. Cycle switch by unplugging and plugging the power cord back into the switch. 3. If the LED is still off, try to plug power cord into a different AC outlet socket to make sure correct AC source is supplied.
SYSTEM LED is RED	An abnormal state was detected by the switch.	Check the switch system log via the Web UI for any abnormal state (e.g., exceeding operating temperature range) and take corresponding actions to resolve.
Port Status LED is Off in Link/Act/Speed Mode	The port is not connected, or the connection is not working.	<ol style="list-style-type: none"> 1. Check if the cable connector plug is firmly inserted and locked into the port at both the switch and the connected device. 2. Make sure the connected device is up and running correctly. 3. If the symptom still exists, try a different cable or different port, in order to identify if it is related to the cable or specific port. 4. Check if the port is disabled in the config settings in the Web UI.
Port Status LED is Off in PoE Mode	The port is not supplying power	<ol style="list-style-type: none"> 1. Check if the cable connector plug is firmly inserted and locked into the port at both the switch and the connected device. 2. Make sure that correct Ethernet cables are used. 3. If the symptom still exists, try a different cable or different port, in order to identify if it is related to the cable or specific port. 4. Check if the port is disabled in the config settings in the Web UI.

Troubleshooting PoE Problems

1. Note that this product is to be connected only to UL listed PoE networks and without routing to the outside plant.
2. Note that PoE devices initially draw more power during their boot up sequence than during normal operation.
3. Determine what the requested power was at the time of failure.
4. Identify how long the device was operational and what events may have occurred at the time of the error to help find the root cause (e.g., an IP phone that comes out of sleep and turns on fully may draw more power momentarily).
5. Determine if there is an issue with the PD drawing too much power; check the PD vendor documentation to determine why it exceeds the power it has negotiated with the switch.
6. Check the type and length of the cabling for any effect on the electrical characteristics and impact on the amount of power drawn on a port.
7. Investigate the power negotiation and confirm that the power requested by a device is also the amount of power that gets allocated. For example, using LLDP requires additional power budget for cabling between the PD and the PSE.
8. Use power measuring and testing equipment to determine if the PD overdraws the amount of power it gets allocated.
9. Enable CDP awareness via the Web UI or the CLI. CDP (Cisco Discovery Protocol) is a Cisco-proprietary Layer 2 protocol that runs on most Cisco equipment and shares information about directly connected Cisco equipment. PoE switches with CDP enabled can recognize Cisco powered devices such as IP phones and WAPs. The actual power requirement can be advertised by the powered device, and the unused class power is returned to the switch power budget.

Compliance Information

FCC Regulations

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at the user's own expense.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Canadian Regulations

This digital apparatus does not exceed the Class A limits for radio noise for digital apparatus set out on the radio interference regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Class A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

CE Mark

This product carries the CE mark since it has been tested and found compliant with the following standards:

- Safety: EN 62368-1
- Emissions: EN 55022, EN 55032 Class A
- Immunity: EN 55024

RoHS, REACH and WEEE Compliance Statement

Please visit <http://www.lantronix.com/legal/rohs/> for Lantronix statement about RoHS, REACH and WEEE compliance.

Declaration of Conformity

Manufacture's Name : Lantronix, Inc.
 Manufacture's Address : 7535 Irvine Center Drive, Suite100
 Irvine, CA 92618, USAU.S.A.
 Declares that the products: SM24TBT2DPB, SM24TBT2DPB-2XPS
 Conforms to the following Product Regulations:
 FCC Part 15 Class A, EN 55032:2012, BS EN 55032, EN 55024:2010, CISPR 32 Class A
 Directive 2014/30/EU, Directive 2015/863/EU
 Low-Voltage Directive 2014/35/EU
 IEC62368-1/EN62368-1
 2011/65/EU EN 50581:2012
 EN 55011: 2009 +A1: 2010 (Group 1, Class A)
 EN 61000-3-2, BS EN 61000-3-2, EN 61000-3-2, BS EN 61000-3-2,
 EN 55024: 2010 / EN 61000-6-2: 2005
 EN55022/EN61000-6-4 , EN55024/EN61000-6-2, IEC/EN61000-4-2, IEC/EN61000-4-3,
 IEC/EN61000-4-4, IEC/EN61000-4-5, IEC/EN61000-4-6, IEC/EN61000-4-8,
 IEC60068-2-27, IEC60068-2-32, and IEC60068-2-6
 IEC 61000-4-11, EN 55035, BS EN55035,
 With the technical construction on file at the above address, this product carries the **CE Mark**
 I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standards(s).
 Place: Minnetonka, Minnesota
 Date: April 2, 2022
 Signature: Fathi Hakam
 Full Name: Fathi Hakam
 Position: Vice President of Engineering

Package and Device Labels

The package and device labels provide information that will be helpful when calling Technical Support.

MODEL	SM24TBT2DPB
Managed Switch, 24-port Gigabit PoE++, 2-port SFP/RJ-45 Combo	
P/N: N0P262Vx-3T0	 S/N: XXXXXXXXXXXXXXXX

Box Label

LANTRONIX

Model: SM24TBT2DPB

Input: AC: 1000W: 100-120Vac, 50/60Hz or 50-60Hz, 12A max.
 1200W: 200-277Vac, 50/60Hz or 50-60Hz, 8.5A max.

S/N: A2061YYARWW00001

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions.
 (1) This device may not cause harmful interference.
 (2) This device must accept any interference received, including interference that may cause undesired operation.

DC Input: 1000W: 217VDC, 7.5A
 1200W: 306-344VDC, 7.5A

MAC: 00C0F2123456

Made in Taiwan

Device Label

Record Device and System Information

After performing the troubleshooting steps, and before calling or emailing Technical Support, please record as much information as possible in order to help the Tech Support Specialist.

1. Select the Monitor > System > Information or the Monitor > System > Overview menu path. From the CLI, use the **show system**, **show version**, **show power**, and **show poe** commands to gather the information below or as requested by the Lantronix Technical Support Specialist.

2. Model Name: _____ Hardware Version: _____
Serial Number: _____ Firmware Version: _____
PoE Firmware Version: _____ Number of Power Supplies installed: _____
Power Supply Model(s): _____ Power Status _____

3. LED Status: _____

4. Provide additional information to your Tech Support Specialist. See the "Troubleshooting" section above.

Your Lantronix service contract number: _____

Describe the failure: _____

Describe any action(s) already taken to resolve the problem (e.g., changing mode, rebooting, etc.): _____

The serial and revision numbers of all involved Lantronix products in the network: _____

Describe your network environment (layout, cable type, etc.): _____

Network load and frame size at the time of trouble (if known): _____

PD equipment used: _____

The device history (i.e., have you returned the device before, is this a recurring problem, etc.): _____

Any previous Return Material Authorization (RMA) numbers: _____

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Technical Support

Online: <https://www.lantronix.com/technical-support/>.

Sales Offices

For a current list of our domestic and international sales offices, go to the Lantronix web site at www.lantronix.com/about/contact.