



SM8TBT2SA and SM24TBT2SA

8 (10/100/1000BASE-T) ports with 4 PoE+ ports and 4 PoE++ ports &
2 Combo 100/1000 RJ-45/SFP ports

24 (10/100/1000BASE-T) ports with 16 PoE+ ports and 8 PoE++ ports
& 4 Combo 100/1000 RJ-45/SFP ports

Install Guide

Part Number 33872
Revision A April 2024

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Revision History

Date	Rev	Description
4/5/24	A	Initial Lantronix release at FW v1.04.0124.

Cautions and Warnings

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: While installing or servicing the power supply module, 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 module.



Warning: Do not connect the power module 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: Equipment grounding is vital to ensure safe operation. The installer must ensure that the power module 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 any external power source OFF and ensure that the power module 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 module. Failure to observe this warning could result in an electric shock, even death.

See [Electrical Safety Warnings](#) on page 30 for electrical safety warnings translated into multiple languages.

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1. Introduction

The Lantronix SMxTBTxSA are next generation web smart+ managed switches; affordable managed switches that provide a reliable infrastructure for your business network. These switches deliver the intelligent features you need to improve the availability of your critical business applications, protect your sensitive information, and optimize your network bandwidth.

The SMxTBTxSA managed GbE PoE++ switch is the next-generation Ethernet switch offering powerful L2 features with better functionality and usability. It delivers the cost-effectively business and transports Ethernet services via fiber or copper connections.

The embedded Device Managed System (DMS) features provides users with the benefits of easy-to-use/configure/install/troubleshoot in the video surveillance, wireless access, and other SMBs and Enterprises applications. The SMxTBTxSA is ideal to deliver management simplicity, better user experience, and lowest total cost of ownership.

Key Features

- L2 features for better manageability, security, QoS, and performance
- IPv4/IPv6 dual stack management
- SSH/SSL secured management
- SNMP v1/v2c
- RMON groups 1,2,3,9
- IGMP v1/v2 Snooping
- MLD v1/v2 Snooping
- RADIUS and TACACS+ authentication
- IP Source Guard
- DHCP Relay (Option 82)
- DHCP Snooping
- 802.1d (STP), 802.1w (RSTP) and 802.1s (MSTP)
- LACP and static link aggregation
- Q-in-Q double tag VLAN
- DMS (Device Management System) built in
- PoE/PoE+/PoE++ support (IEEE 802.3 af/at/bt)
- Extend PoE Mode for 250 m at 10 Mbps
- Perceptixon ready/enabled and LPM support

Benefits

Cost-effective Ethernet Switch for Enterprise-class: The switch delivers advanced functionality in Web Smart+ managed switch including DHCP client, IGMP, LLDP, etc. It also has basic security features such as IEEE 802.1x to protect your network from unauthorized access. It helps users to build on the market-leading price/performance with Web Smart+ managed GbE switch, and provide ease of use for enterprise and SMB deployments.

Easy to Install, Configure and Troubleshoot by DMS: The Device Management System provides embedded functions to facilitate devices management at anytime and anywhere. Its user-friendly interface helps users to manage devices intuitively. It supports various IP device types (e.g. PC, IP phone, IP camera, WiFi-AP) for end users to enhance manageability and save time/cost during installation and maintenance.

Advanced PoE Management: The switches include PoE++ options to power IP devices with power-saving features like Power scheduling and PoE configuration.

PoE Solution for extended mode: The switch provides PoE power on a per-port basis at 10Mbps operation; it can support PoE power output correspondingly over a distance up to 250 meters overcoming the 100m limit on Ethernet cable. With this feature, the PoE switch provides an additional solution for PoE distance extension, to save the cost of Ethernet cable installation.

Ordering Information

This manual documents two similar models as described below. The models differ mainly in port count. Model differences are noted where applicable throughout this manual.

Model	Description
SM8TBT2SA-xx	Smart Managed Switch, 8 (10/100/1000BASE-T) ports with 4 PoE+ ports and 4 PoE++ ports & 2 Combo 100/1000 RJ-45/SFP ports. (Includes 19" rackmount brackets)
SM24TBT2SA	Smart Managed Switch, 24 (10/100/1000BASE-T) ports with 16 PoE+ ports and 8 PoE++ ports & 4 Combo 100/1000 RJ-45/SFP ports. (Includes 19" rackmount brackets)
Optional Accessories (order separately)	
SFP Modules	See Lantronix full line of SFP transceivers on our SFP webpage .
MS-PLUGIN-01	Milestone XProtect Integration; a Software Plugin for Monitoring Alarms and Quick Links for Lantronix Switches
PercepXion	Centralized cloud-based or on-premise Management Software. For PercepXion cloud-based software-as-a-service, select an annual subscription model. Delivered as a service, the PercepXion multi-tenant cloud platform provides comprehensive device lifecycle management via Web and mobile apps. It is offered with bundled Level Technical Support, limited warranty and other optional services.
CF-NWSCLOUDSAAS-xYR	PercepXion Cloud Subscription x-Years (1,3 or 5 years)
LEVEL-x-yYEAR	Technical Support Services, Level 1, 2 or 3 and 1, 3 or 5 year subscription

Specifications

Port Configuration

Total Ports	RJ45 (10M/100M/1G) PoE+	RJ45 (10M/100M/1G) PoE++	RJ45 (10M/100M/1G)	100M/1G SFP	RJ45 Console
SM8TBT2SA = 10	4	4	2	2	1
SM24TBT2SA = 28	12	12	4	2	1

Hardware Performance

Model	Forwarding Capacity (Mbps)	Switching Capacity (Gbps)	Mac Table (K)	Jumbo Frames (Bytes)
SM8TBT2SA	14.88	20	8	9216
SM24TBT2SA	41.7	56	8	9216

Environmental Range

Operating Temperature		Storage Temperature		Operating Humidity	Altitude	
Fahrenheit	Centigrade	Fahrenheit	Centigrade		Feet	Meters
14 to 122°	-10 to +50°	-4 to +158°	-20 to +70°	10% to 90% non-condensing	< 10000	<3000

Dimensions, Weights, Mounting

Model	Dimensions (WxHxD)		Weight		Mounting Type
	Millimeters	Inches	Pounds	Kilograms	
SM8TBT2SA	220 x 44 x 242	8.7 x 1.7 x 9.5	4.4	2.0	Desktop, Rack
SM24TBT2SA	442x 44x 211	17.4x 1.7x 8.3	6.6	3.0	Desktop, Rack

Voltage, Frequency, and Power

AC Input Voltage, Frequency and Power	
Voltage	100-240 VAC
Frequency	50~60 Hz
Power	SM8TBT2SA: ___ A max (to be supplied) SM24TBT2SA: ___ A max (to be supplied)

PoE Power

Model	PoE Budget	Number of Ports that Support PoE (15.4W), PoE+ (30W), PoE++ (90W)
SM8TBT2SA	240W	Each of ports 1-4 support PoE/PoE+ Each of ports 5-8 support PoE/PoE+/PoE++ within available PoE Power
SM24TBT2SA	740W	Each of ports 1-16 support PoE/PoE+ Each of ports 17-24 support PoE/PoE+/PoE++ within available PoE Power

Power Consumption

Power Consumption	Without PoE	Full Load with PoE
SM8TBT2SA	(to be supplied)	(to be supplied)
SM24TBT2SA	(to be supplied)	(to be supplied)

MTBF

SM8TBT2SA	GB, GC - Ground Benign, Controlled 25°C	(to be supplied)
	GB, GC - Ground Benign, Controlled 50°C	(to be supplied)
SM8TBT2SA	GB, GC - Ground Benign, Controlled 25°C	(to be supplied)
	GB, GC - Ground Benign, Controlled 50°C	(to be supplied)

Standards, Certifications and Warranty

Certs, Safety, and Warranty	
Standards	IEEE 802.3, IEEE 802.3u, IEEE 802.3z, IEEE 802.3ab, 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 802.3az
Certs	CE, FCC Part 15 Class A
Safety	UL Pending
Warranty	5 years

Software Features

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	<ul style="list-style-type: none"> • Link Aggregation Control Protocol (LACP) IEEE 802.3ad • Static aggregation
VLAN	Supports up to 4K VLANs simultaneously (out of 4096 VLAN IDs). Port-based VLAN; 802.1Q tag-based VLAN; Protocol based VLAN; IP subnet-based VLAN; Private VLAN Edge (PVE); MAC-based VLAN; Q-in-Q (double tag) 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 Snooping	IGMP limits bandwidth-intensive multicast traffic to only the requesters. Supports 512 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
Multicast VLAN Registration	MVR uses a dedicated manually configured VLAN, called the multicast VLAN, to forward multicast traffic over Layer 2 network in conjunction with IGMP snooping
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 to specific port in the switch
RADIUS/ TACACS+	Supports RADIUS and TACACS+ authentication. Switch 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	A feature acts as a firewall between untrusted hosts and trusted DHCP servers
Loop Protection	Prevents unknown unicast, broadcast, multicast loops in Layer 2 switching.
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
Rate Limiting	<ul style="list-style-type: none"> • Ingress policer • Egress shaping and rate control • Per port
Management	
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 (N is Switch's Ports) ports can be mirrored to a single destination port. A single session is supported.
IEEE 802.1ab (LLDP)	Used by network devices for advertising their identities, capabilities, and neighbors on an IEEE 802ab local area network. Support LLDP-MED extensions.
Web GUI	Built-in switch configuration utility for browser-based device configuration
Dual Image	Independent primary and secondary images for backup while upgrading
UPnP	The Universal Plug and Play Forum was formed to standardize discovery and control of networked devices. See the Open Connectivity Foundation webpage .
DHCP Server	Support DHCP server to assign IP to DHCP clients
SNMP	SNMP v1, v2c, v3 with traps, and SNMP v 3 user-based security model (USM)
Firmware Upgrade	Web browser upgrade (HTTP/ HTTPS) and TFTP
NTP	Network Time Protocol (NTP) is a networking protocol for clock synchronization between computer systems over packet-switched
Other Management	HTTP/HTTPS; DHCP Client; Cable Diagnostics; Syslog; Telnet Client; SSH, IPv6 Management

Device Management System (DMS)	
Graphical Monitoring	<ul style="list-style-type: none"> • Topology view: Intuitive way to configure and manage switches and other devices with visual relations. • Floor view: Easily drag and drop PoE devices and help you to build smart workforces. • Map view: Efficiently drag and drop devices and monitor locations on Google Maps.
Find My Switch	The front panel LEDs flash for 15 seconds to visually identify the switch.
Traffic Monitoring	Display a visual chart of network traffic of all devices and monitor every port at any time.
Troubleshooting	Network diagnostic between master switch and devices. Supports protection mechanism, such as rate-limiting to protect your devices from brute-force downloading.
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 powered devices (PDs)
Auto Power Reset	Automatically checks the link status of PDs, and reboots PDs if there are no responses
Power Delay	The switch provides power to the PDs based on delay time when PoE switch boots up, to protect switch from misuse of the PDs
Always on PoE	Always On PoE (soft reboot) allows a warm reboot of the switch without affecting the PoE output to the PD, providing continuous power even during firmware upgrade
Extend PoE Mode	When enabled, the port will transfer data at a rate up to 10 Mbps in full duplex mode and extend the PoE range up to 250 meters. If a PD is connected to the port, the switch follows the IEEE 802.3at PoE+ standard to supply power to the connected PD during power up. Note: With this feature enabled on a port after the connected PD starts up completely, you must disable PoE and enable it again or disconnect and reconnect the cable to the port for PoE Extended Mode to take effect.
Percepixon and LPM	
Percepixon	<p>Centralized Management Software for Lantronix devices.</p> <ul style="list-style-type: none"> • Firmware upgrades via Percepixon • Backup / restore of switch configurations via Percepixon • Switch port information via Percepixon • PoE telemetry / statistics via Percepixon • Percepixon dashboards <ul style="list-style-type: none"> ○ Trend Analysis • Web Connect from Percepixon to switch (via Percepixon open switch web GUI to view DMS Topology, etc.) • Percepixon Geo Location
LPM	Lantronix Provisioning Manager allows easy administration of Lantronix devices. LPM lets you quickly update firmware, update configuration, and provision one or more devices simultaneously. See the LPM product page for details.

Applications

- IP surveillance, supplying power and data to IP cameras
- Connecting and remotely powering wireless access points
- Monitoring/managing attached powered devices from various vendors
- Environments requiring extending PoE range from 100 meters to up to 250 meters



PoE Lighting



Smart Building



Security & Surveillance



Digital Signage

About This Manual

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

- Install the switch.
- Check switch status by reading the LED behavior.
- Reset the switch or restore the switch to factory defaults.
- Initially set up the switch.
- Troubleshoot switch installation.

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

Related Manuals

Related manuals include:

- SMxTBTxSA Quick Start Guide, 33871
- SMxTBTxSA Web User Guide, 33873
- SMxTBTxSA CLI Reference, 33874
- Release Notes (version specific)

For Lantronix Drivers, Firmware, Manuals, etc. go to the Lantronix [Technical Resource Center](https://www.lantronix.com/).

2. Product Description

Overview

This chapter describes the SMxTBTxSA switches, including descriptions of:

- Front and Back Panels.
- Reset the switch or restore the switch to factory defaults.
- Mode/Reset button operation and functions.
- LED operation.

Front Panels

The front panels are similar except for port counts.

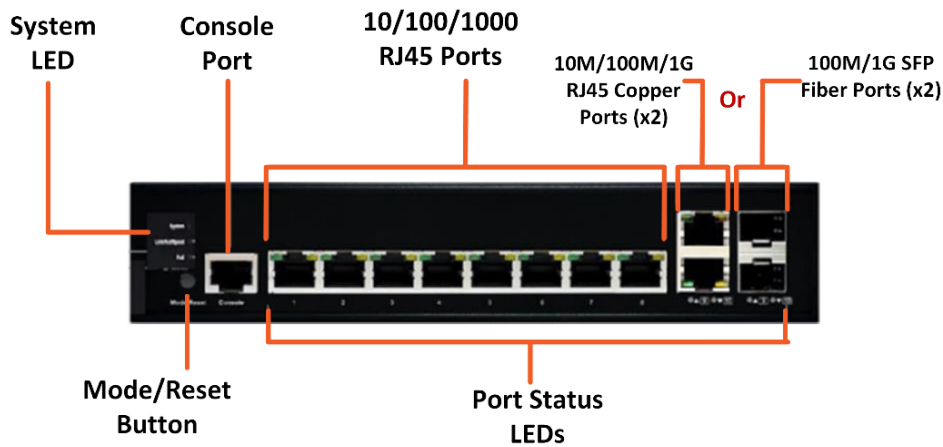


Figure 1: SM8TBT2SA Front Panel

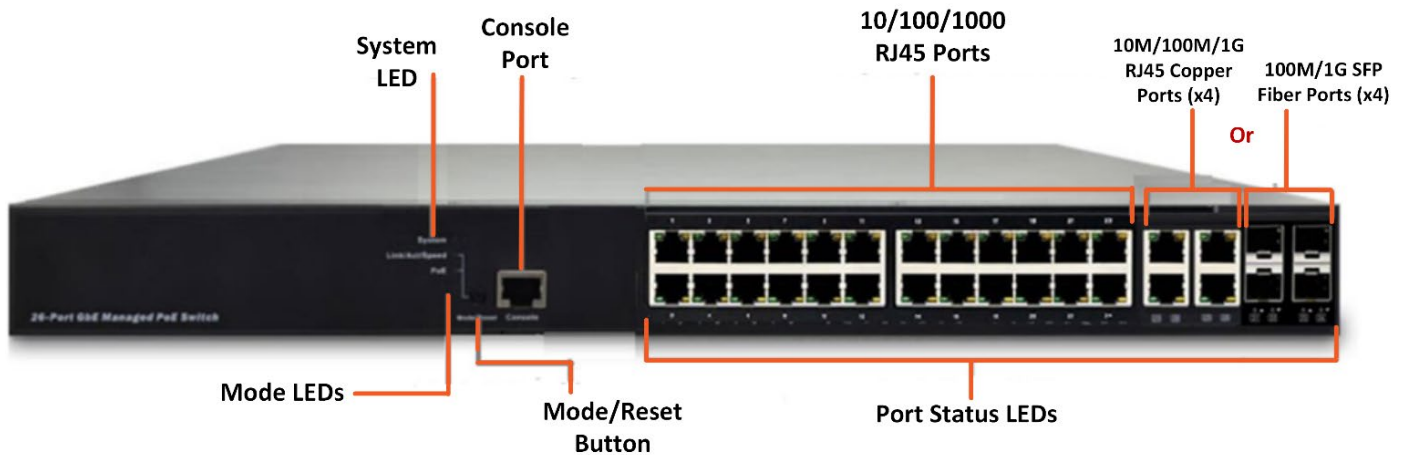


Figure 2: SM24TBT2SA Front Panel

Back Panels

The back panels are similar except for overall width.

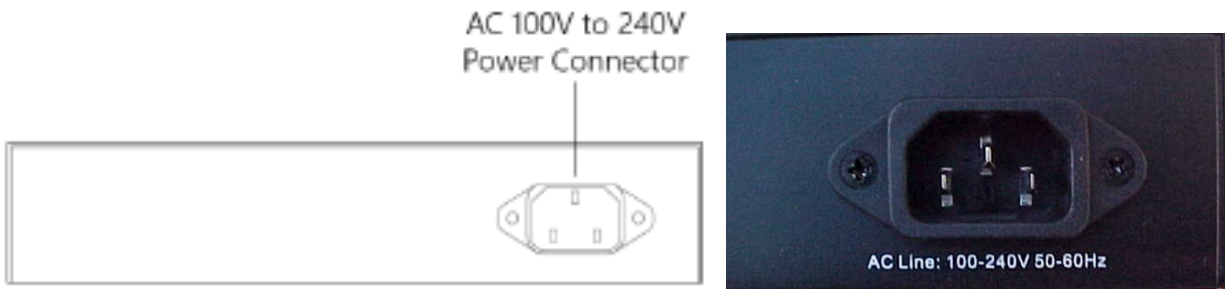
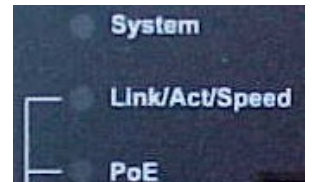


Figure 2: SMxTBTxSA Back Panel

LED Descriptions

The LEDs on the front panel provide switch status checking and monitoring. There are three types of LEDs as follows:



System LED

Indicates if the system is ready or not or, indicates if there is a system alarm triggered for troubleshooting.

Mode LEDs

Indicates the mode of all ports on the switch. You can press the Mode button sequentially to switch between the two different modes (Link/Activity/Speed mode and PoE mode).

Port Status LEDs

Indicates the current status of each RJ45/SFP port. You can check these LEDs to understand the port status.

The LED indicators are described in the following tables.

Table 1: System LED

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.

Table 2: Mode LEDs


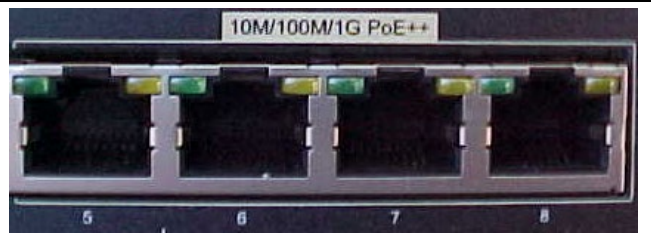


LED	Color	State	Description
Link/Act/Speed	Green	On	The Port Status LEDs display link status, network activity, and speed of each port.
PoE	Green	On	The RJ45 Port Status LEDs display PoE powering status of each port.

By pressing the **Mode/Reset** button for less than 2 seconds to change LED modes (Link/Act/Speed Mode or PoE Mode) you can 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 1Gbps.
	Green	Blinking	The port is transmitting/receiving packets, and the connection speed is 1Gbps.
	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. The port may have been disabled via the switch UI.
RJ45 Ports PoE	Green	On	The port is enabled and established a link to connected device.
	Amber	On	The port is abnormal.
	--	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.
Combo RJ45 Ports	Amber	On	The port is transmitting/receiving packets, and the connection speed is 10/100Mbps.
	Amber	Blinking	The port is transmitting/receiving packets, and the connection speed is 10/100Mbps.
	Green	On	The port is enabled and established a link to connected device, and the connection speed is 1Gbps.
	Green	Blinking	The port is transmitting/receiving packets and the connection speed is 1Gbps.
	--	Off	The port has no active network cable connected, or it has not established a link to connected device. The port may have been disabled via the switch UI.

Combo SFP Ports	Amber	On	The port is enabled and 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.
	Green	On	The port is enabled and established a link to connected device, and the connection speed is 1Gbps.
	Green	Blinking	The port is transmitting/receiving packets, and the connection speed is 1Gbps.
	--	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.

	
10M/100M/1G PoE+ Port LEDs	10M/100M/1G PoE++ Port LEDs
	
10M/100M/1G RJ45 (Copper) Ports (x2 or x4)	100M/1G SFP (Fiber) Ports (X2 or x4)

Mode/Reset Button

By pressing the Mode/Reset button for a certain period of time, you can perform these tasks.

- **Change Port Status LED Mode:** to read the port status correctly in the two different modes (PoE mode or Link/Act/Speed mode).
- **Reset the Switch:** to reboot and get the switch back to the previous configuration settings saved. The First Time Wizard displays again after pressing the Reset button.
- **Restore the Switch to Factory Defaults:** to restore the original factory default settings back to the switch.



Note: Based on the table below, you can judge which task is being performed by reading the LED behaviors while pressing the Mode/Reset button. Once the LED behaviors are correctly displayed, you may 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 be changed according to the mode selected.
Reset the Switch	2 ~ 7 seconds	Blinking Green	ALL LEDs Are OFF.
Restore to Defaults	7 ~ 12 seconds	Blinking Green	ALL LEDs Stay ON.

Press the **Reset** button until all port LEDs light, then release the **Reset** button. This will set the unit back to its factory default IP address; log back in to display the Startup Wizard.

3. Installation

Package Contents

Carefully unpack the package contents. Make sure no items are missing or damaged. Please save the packaging for possible future use.

- One Switch
- One AC Power cord (country specific)
- Four adhesive rubber feet
- One Printed Quick Start Guide
- 19" Rack Mount brackets
- RJ45 to DB9 Serial Console Cable (Option)
- Screws (x8)
- One LTX Insert Card

Caution: The switch is an indoor device. If it is to be used with outdoor devices such as outdoor IP cameras or outdoor Wi-Fi APs, then you are strongly suggested to install a surge protector or surge suppressor to protect the switch.

Mounting the Switch in a 19-inch Rack

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

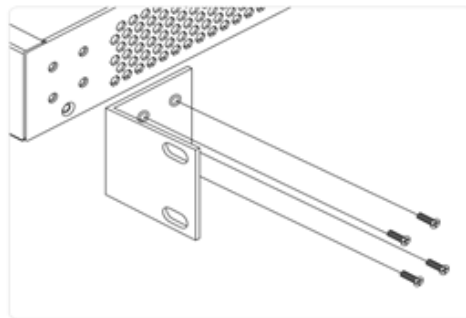


Figure 7: Attaching Brackets to the Switch

Step 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.

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

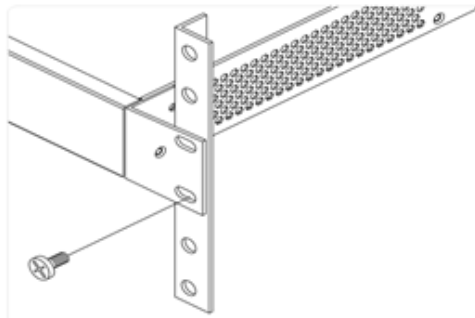


Figure 8: Attaching Brackets to the Rack Post

Mounting the Switch on Desk or Shelf

Step 1: Verify that the workbench is sturdy and reliably grounded.

Step 2: Attach the four adhesive rubber feet to the bottom of the switch.

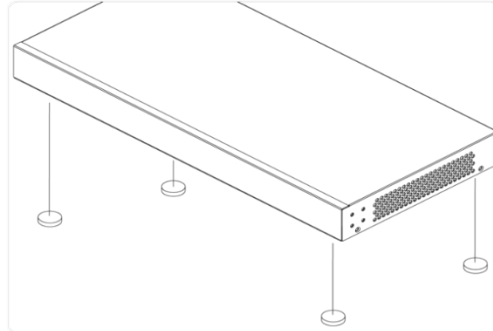


Figure 6: Attaching the Rubber Feet

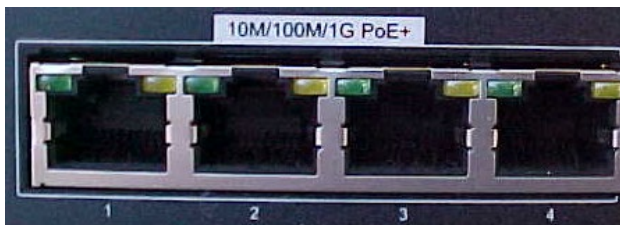
Connecting Devices

10M/100M/1G PoE+ Ports: Connect four or 24 IEEE 802.3at PoE+ PDs.

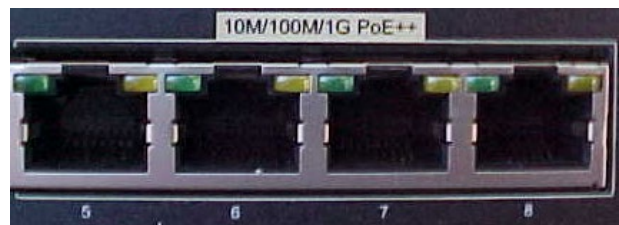
10M/100M/1G PoE++ Ports: Connect four or 24 IEEE 802.3bt PoE++ PDs.

100/1000 RJ45/SFP Combo Ports: Connect to two or four 10M/100M/1G RJ45 devices **or** connect to two or four 100M/1G SFP (Fiber) devices.

Caution: If utilizing the PoE Force mode feature, only connect PDs which support power input in the 48~56V range to prevent damage to PDs. When the port is changed to Force mode, the port's PoE LED lights immediately. See the *Web User Guide* for details.



10M/100M/1G PoE+ Ports



10M/100M/1G PoE++ Ports



10M/100M/1G RJ45 (Copper) Ports (x2 or x4)



100M/1G SFP (Fiber) Ports (X2 or x4)

Figure 10: Switch Ports

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: see the related SFP device manual for important Safety warnings. See the Lantronix [SFP page](#) for our full line of SFP transceivers. See the [FOA webpage](#) for additional information. The Fiber Optic Association, Inc. is an international non-profit educational association chartered to promote professionalism in fiber optics through education, certification and standards.

Step 1: Insert the module into the SFP port.

Step 2: Press firmly to ensure that the SFP module seats into the connector.

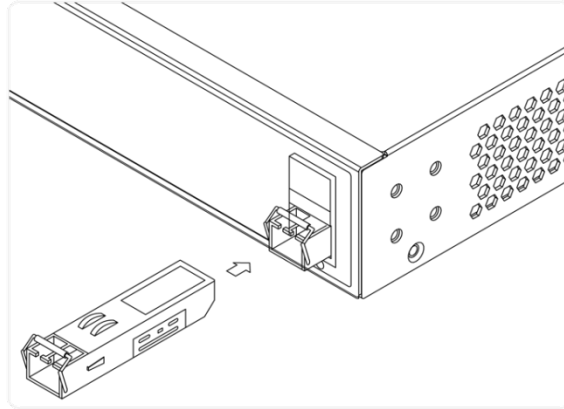


Figure 9: Installing an SFP+ Module into an SFP+ Port

Connecting the AC Power Cord

The switch ships with a country specific AC Power cord. To order the corresponding country specific power cord, add the Country Code extension to the end of the SKU (e.g., SM8TBT2SA-NA = North America, -LA = Latin America, -EU = Europe, -UK = United Kingdom, -SA = South Africa, -JP = Japan, -OZ = Australia, -BR = Brazil).

Caution: The switch is an indoor device. If it is to be used with outdoor devices such as outdoor IP cameras or outdoor Wi-Fi APs, then you are strongly suggested to install a surge protector or surge suppressor to protect the switch.

Step 1: Connect the AC power cord to the AC power receptacle of switch.

Step 2: Connect the other end of the AC power cord to the AC power outlet. When connecting to AC power, avoid outlets connected to a wall switch.

Step 3: Check the SYS LED. If it is ON, the power connection is correct.

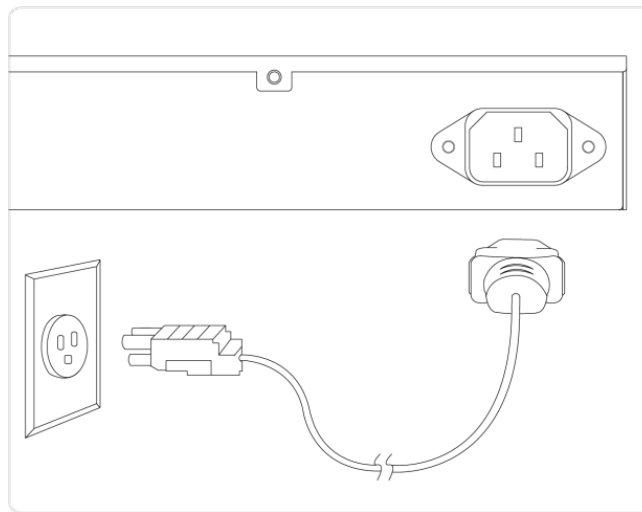


Figure 11: Connecting AC Power Cord

4. Initial Switch Setup

Initial Switch Setup via Web Browser

For the initial configuration stage, you must reconfigure your PC's IP address and subnet mask so as to make sure the PC can communicate with the switch. After changing PC's IP address (for example, 192.168.1.250), then you can access the Web interface of the switch using the switch's default IP address as shown below.

The initial switch configuration via web browser procedure is as follows:

Note: The switch's factory default IP address is **192.168.1.77** and the factory default Subnet Mask is **255.255.255.0**.

1. Power up the PC that you will use for the initial configuration. Make sure the PC has an 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.
3. Power up the switch to be initially configured and wait until it has finished its start-up process.
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 a Web browser on the PC; enter the factory default IP address, to access the switch Web UI. If your PC is configured correctly, you will see the Login page of the switch as shown below.



Figure 11: Web Interface Login page

If you do not see the above login page, perform these steps:

- Refresh the web page.
 - Check to see if there is an IP conflict issue.
 - 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 the login page.
 7. Click "Login" to log into the switch.

See the *SMxTBTxSA Web User Guide* for more information.

Initial Switch Setup via CLI

The CLI (Command Line Interface) can be accessed via telnet or SSH. A brief description of the network connection is provided below.

The RJ-45 to DB9 Serial Console cable (option) is used for connecting a terminal or PC/terminal emulator to the Switch's RJ-45 port to access the CLI.

1. Attach the RJ-45 end of the serial port cable to the Console port on the switch's front panel.
2. Attach the DB-9 end of the cable to an ASCII terminal or to a PC's COM port (e.g., a PC running Microsoft Windows HyperTerminal), [HyperTerminal](#) for Windows 10, [HyperACCESS](#) (successor to HyperTerminal), or [PuTTY](#) (requires a PC COM port).
3. At the "Com Port Properties" Menu, configure the parameters Baud rate=115200, Stop bits=1, Data bits=8, Parity=N, Flow control=none.

Initial Switch Configuration

When you log in to the switch the first time, a First Time Wizard is displayed. On subsequent power ups, you can perform the initial switch configuration using a web browser. See the Install Guide for First Time Wizard information. For managing other switch features, refer to the Web User Guide.

5. Troubleshooting, Support, and Compliance

Troubleshooting

The following table provides steps to troubleshoot problems by taking actions based on the suggested solutions.

Table 5: Troubleshooting Procedure

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. Perform power cycling the 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 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 system log to understand the 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 connected device. 2. Make sure the connected device is up and running correctly. 3. If the symptom still exists, try different cable or different port to tell if it is related to the cable or specific port. 4. Check if the port is disabled in the configuration settings via the Web user interface.
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 connected device. 2. Make sure the correct Ethernet cables are used. 3. If symptom still exists, try different cable or different port to identify if it is related to the cable or specific port. 4. Check if the port is disabled in the configuration settings via the Web user interface.

PoE Modes and Compliance

PoE Deployment in Environments A and B

IEEE802.3at-2009 defines two deployment environments in section 33.4.1:

Environment A: when both PSE and PD are located indoors, inside the same building. In this environment, there must be electrical isolation between the PoE circuitry and the data circuitry inside a PSE. Multi-port PSE's can all share the same ground isolation. Environment A is therefore an indoor PSE –indoor PD environment (a.k.a. indoor/indoor).

Environment B: when the PSE and PD are not located in the same building. In this environment there needs to be electrical isolation between PoE and data, as well as between every port in a multi-port PSE. This isolation between ports requirement de facto determines a completely separate power supply per port, which makes multi-port PSEs for outdoor PD deployment impractical. Environment B is therefore an indoor PSE-outdoor PD (a.k.a. indoor/outdoor) or outdoor PSE-outdoor PD (a.k.a. outdoor/outdoor) environment.

This means only single-port PSEs should normally be used when PDs are deployed outdoors. In summary, the PD-PSE environment is one of these three combinations:

1. PoE Source is indoor, PD is indoor (Env. A)
2. PoE Source is indoor, PD is outdoor (Env. B)
3. PoE Source is outdoor, PD is outdoor (Env. B)

Option 3 is the most challenging environment since both the PD and PSE are installed outdoors.

Caution: The switch is an indoor device. If it is to be used with outdoor devices such as outdoor IP cameras or outdoor Wi-Fi APs, then you are strongly suggested to install a surge protector or surge suppressor to protect the switch. The switch is compliant with 802.3at in Environment A when using an isolated power supply. For 802.3at Environment B applications, i.e., building to building, copper to copper endpoint connections: 1) use an Ethernet network isolator module (PoE disabled), or 2) use mid-span injector (s), e.g., MIL-L100i, L1000i-at, between this switch's PSE port and link partner PD port.

Mode A vs. Mode B

Alternative A, also known as Mode A, uses the data pairs of an Ethernet link to deliver power. Data Pairs include pins 1,2 and 3,6. PSEs using Mode A supply a positive voltage to pins 1 and 2. Alternative B, also known as Mode B, uses the spare pairs to deliver power. Spare Pairs include pins 4,5 and 7,8.

802.3af/at Standard "compliant" vs "compatible" PDs

Knowing the difference between PoE "compliant" and "compatible" devices can help avoid interoperability and connectivity issues. Compliant PoE devices and compatible PoE devices are not held to the same 802.3af/at standard:

- 802.3af/at "compliant" PDs fulfill the IEEE strict requirement to support both Mode A and Mode B power modes.
- 802.3af/at "compatible" PDs typically can provide power using only Mode B.

Typical PD Power Requirements

- 1.8 Watts: Lantronix' M/GE-ISW-SFP-01-PD (Class 1 Powered Device (0.44 - 3.84 Watts).
- 13W: IP Camera, VoIP Phone, Wireless Access Point, Networked Audio.
- 30W: IP Telephone, WiMAX Access Point, PTZ Camera, Remote Computer Terminal.
- 60W : Door Access System, Video Phone, Thin Client.
- 100W: Digital Signage Display, Point-of-Sale System, LCD TV, Computer Monitor.
- 200W: Larger TV, Larger Display, Larger Monitor, Laptop.

After eliminating basic network factors, ask your PD vendor for the PD's power supply mode and polarities supported and exact power consumption.

Calculate PoE Power Budget

To calculate how many 802.3at devices the unit supports, divide the Total PoE Budget (130 Watts) by 30 Watts. To calculate the maximum number of 802.3af devices, divide the Total PoE Budget (130 Watts) by 15.4 Watts.

Mixing POE and Non-POE Devices

You can mix POE and non-POE devices on the same POE switch (i.e., you can put PCs on the same POE switch as a SIP phone or a VOIP phone). The PSE (your switch) will only send power if requested by the PD.

Ethernet and PoE Intra-Building Cabling Warnings

1. 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.
2. PoE cables are intended for intrabuilding use only. Connecting your Lantronix switch directly to PoE 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.
3. For outdoor PoE applications, we recommend using Lantronix' SI-IES-1200-LRT Unmanaged Hardened PoE+ Injector or SI-IES-111D-LRT Unmanaged Hardened PoE+ Injector/Converter Use of any other PoE injector will void the user's warranty and could create a fire or shock hazard.

Legacy PD Detection / Capacitor Detection

Legacy PDs refers to powered devices manufactured before the IEEE standard was finalized and do not have the expected PD signature required by the PSE's detection signal. Such PDs usually feature large capacitance as the detection signature that does not completely comply with the 802.3af specs. By enabling this option, the switch will probe for legacy PDs and if a legacy PD is detected, the switch will provide power to the PD.

Troubleshooting PoE Problems

1. Get as much detail as possible regarding the symptom, including any system messages from the PoE switch. For example, does a PD not power up at all, or does it power up briefly and then power down?
2. Determine if the trouble occurred on initial installation or after the PD had been working normally?
3. If the trouble started after the PD was working, what changed? Any hardware or software changes?
4. Verify that the port is not shut down, disabled, or errored.
5. Verify that the Ethernet cable from the PD to the switch port is good.
6. Verify that the total cable length from the switch front panel to the connected PD is not more than 100 meters. Some of the power from the switch port is dissipated in the cable due to wire resistance, especially on cables as long as 100 meters. Only the remaining power is available to the PD. The 100-meter limit for twisted-pair Ethernet cable assumes **a)** not more than four RJ-45 connection points in the transmission path, **b)** 90 meters of solid-strand Category 5 or 5e, and **c)** 10 meters of flexible multistrand cable (2-to-5 meters of multistrand Category 5 patch cords). **Note:** See the Web User Guide for extended distance applications.
7. Verify that the PSE switch power budget can power the PD. If the switch power budget is depleted, additional PDs will not power-on when connected to a PoE port. Verify that the switch power budget (available PoE) is not depleted before or after the PD is connected. Verify that enough power is available for the PD type.
8. Verify if non-powered Ethernet devices can establish an Ethernet link on any port and that PoE devices do not power up on the same port.
9. Review alarms reported previously by system messages.
10. If a working IP Phone or WAP intermittently reloads or disconnects from inline power, verify all electrical connections from the switch to the PD. An unreliable connection results in power interruptions and intermittent PD operation, such as PD disconnects and reloads.
11. Check for changes in the electrical environment at the switch site. What is happening at the PD when the disconnect occurs? Check for error messages reported by the switch at the same time of the disconnect.

12. Pre-standard and post-standard VoIP phones may use different detection and connect / disconnect methods. Note that PD detection occurs when an Ethernet device is first connected to a PoE port. If a non-PoE device is connected to a PoE port, detection is deactivated. If the non-PoE device is later disconnected and replaced by a PD, the switch may not detect it immediately.
13. Verify that the PD is not causing an overcurrent condition on the port. Specifically: does the VoIP phone initially power on and then disconnect? If so, the problem may be an initial current surge that exceeds a current-limit threshold for the switch port. Some PDs may have excessive “surge in” current when first connected to a PoE port. The switch initially provides power to the port, and then quickly removes power due to a momentary overcurrent condition. The PD starts to power up, but then quickly powers down.
14. Most PoE switches have voltage and current regulators that detect an overcurrent threshold and disconnect power from the line. This prevents excessive current from being delivered by the PoE port, which could possibly result in damage to port-level components.
15. A variety of disturbances on the AC power line (mains) can cause odd PoE problems. The power supplies in various switches and PDs can react uniquely to AC input disturbances. AC disruption problems are usually temporary or one-time occurrences. For example, a specific switch or PD may reboot due to an AC power problem, while other switches or PDs may show a greater immunity to the problem. This is a typical occurrence during lightning storms or AC power maintenance. In a worst-case scenario, a PoE power supply may appear to shut down, with no PoE output voltage to any port. It's possible the switch's Ethernet functions appear normal, and only the PoE functions are disrupted or degraded, or the switch may power down completely due to the AC disturbance. PDs may exhibit unusual behavior. In such cases, power cycle the switch (unplug the switch, wait at least three seconds, then plug it back in. This will ensure a total system reset that should restore normal operation.
16. Check if related features (LLDP mode, CDP mode) are enabled.

Recording Device and System Information

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

1. Select the SMxTBTxSA **Configuration > System > Information** menu path. From the CLI, use the **show** commands needed to gather the information below or as requested by the Tech Support Specialist.
2. Record SMxTBTxSA **Model Information**: Model Name: _____
 Hardware Version: _____ Mechanical Version: _____
 Firmware Version: _____ System Date: _____
3. Record the **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: _____

A description of your network environment (layout, cable type, etc.): _____

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

Any previous Return Material Authorization (RMA) numbers: _____



Product Label



Package Label

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.

EU Declaration of Conformity

To be supplied

UK Declaration of Conformity

To be supplied.

EU Declaration of Conformity

Manufacture’s Name: Lantronix, Inc.
Manufacture’s Address: 48 Discovery, Suite 250, Irvine, California 92618 USA
Declares that the products: SM8TBT2SA, SM24TBT2SA
Conform to the following Product Regulations:
CE, FCC Part 15 Class A
UL Pending
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 Standard(s).
Place: Irvine, California
Date: March 9, 2024
Signature: *Eric Bass*
Full Name: Eric Bass
Position: Vice President of Engineering

NDAA, RoHS, REACH and WEEE Compliance

See our Compliance Statement at [NDAA, RoHS, REACH and WEEE Compliance Statement | Lantronix](#)

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 sikkerhedsadvarselne.

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.

**Lantronix Corporate Headquarters**

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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.